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HYDRO-ELECTRIC INQUIRY COMMISSION

GENERAL REPORT

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VOLUME II

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VOLUME II

HYDRO-ELECTRIC INQUIRY COMMISSION

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of the
GENERAL REPORT
of the
HYDRO-ELECTRIC INQUIRY COMMISSION

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PART VIII - PROVINCIAL AND MUNICIPAL LIABILITY

Section 28

G E N E R A L

In previous sections of this report, in dealing with the legal status of the Commission, its relation with the Government and the question of sinking fund and interest charges, we have dealt in a general way with the liability of the Province in respect of all works owned or operated by the Commission, and the sections just referred to should be read in conjunction with these sections.

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Section 29

FINANCIAL STATUS, MARCH 31st, 1923

As pointed out in our report entitled "History and General Relations", the Auditor of the Commission's accounts, Mr. G. T. Clarkson, prepared for us a statement showing the cash advances and guarantees made or given by the Province in respect of Hydro-Electric undertakings, since the creation of the Commission, and the sinking fund deposited with the Provincial Treasurer as security for its advances and guarantees. The statement referred to appears in our report entitled "History and General Relations", but we repeat it here for purposes of convenience:

Cash advanced by the Province of Ontario to the Commission up to 31st March, 1923		$107,282,799.90
Made up as follows:		
Chippawa Power Development	$62,025,023.42	
Essex System	22,000.00	
Niagara and other Systems	45,235,776.48	
In addition to the above, bonds were guaranteed by the Province as follows:		
Bonds of The Ontario Power Company and of the Commission issued in connection therewith	$23,091,000.00	
Bonds of Commission issued to purchase Essex System	226,000.00	
Bonds of Commission issued to purchase Thorold System	100,000.00	
Debentures of Toronto Power Company Guaranteed by the Commission and covenant of the Commission guaranteed by the Province	12,383,831.95	
6% Bonds of the Commission re "Clean-up" Deal	619,000.00	
Bonds issued by Commission re purchase and rehabilitation of S. [illegible] Railway	3,000,000.00	
Bonds issued by Commission re purchase of capital stock of Toronto & York Railway and Schomberg Railway	2,375,000.00	
Bonds issued by Commission re Port Credit & St. Catharines Railway (now deposited with the Bank of Montreal as security for a loan of $500,000) ..	1,200,000.00	
Bonds and cash advances re Central Ontario System	12,117,708.78	55,112,540.73
		$162,395,340.63
Less: Sinking funds deposited with the Provincial Treasurer and securities held by the Commission at March 31st, 1923, to be deposited with the Provincial Treasurer:		
Niagara and other Power Systems	2,508,919.21	
Central Ontario System	28,663.60	2,537,582.81
		$159,857,757.82

Note: The above statement is on a cash basis and does not include uncollected sinking funds or those subsequently provided as at October 31, 1922, in respect of the Toronto Power Company and subsidiary companies.

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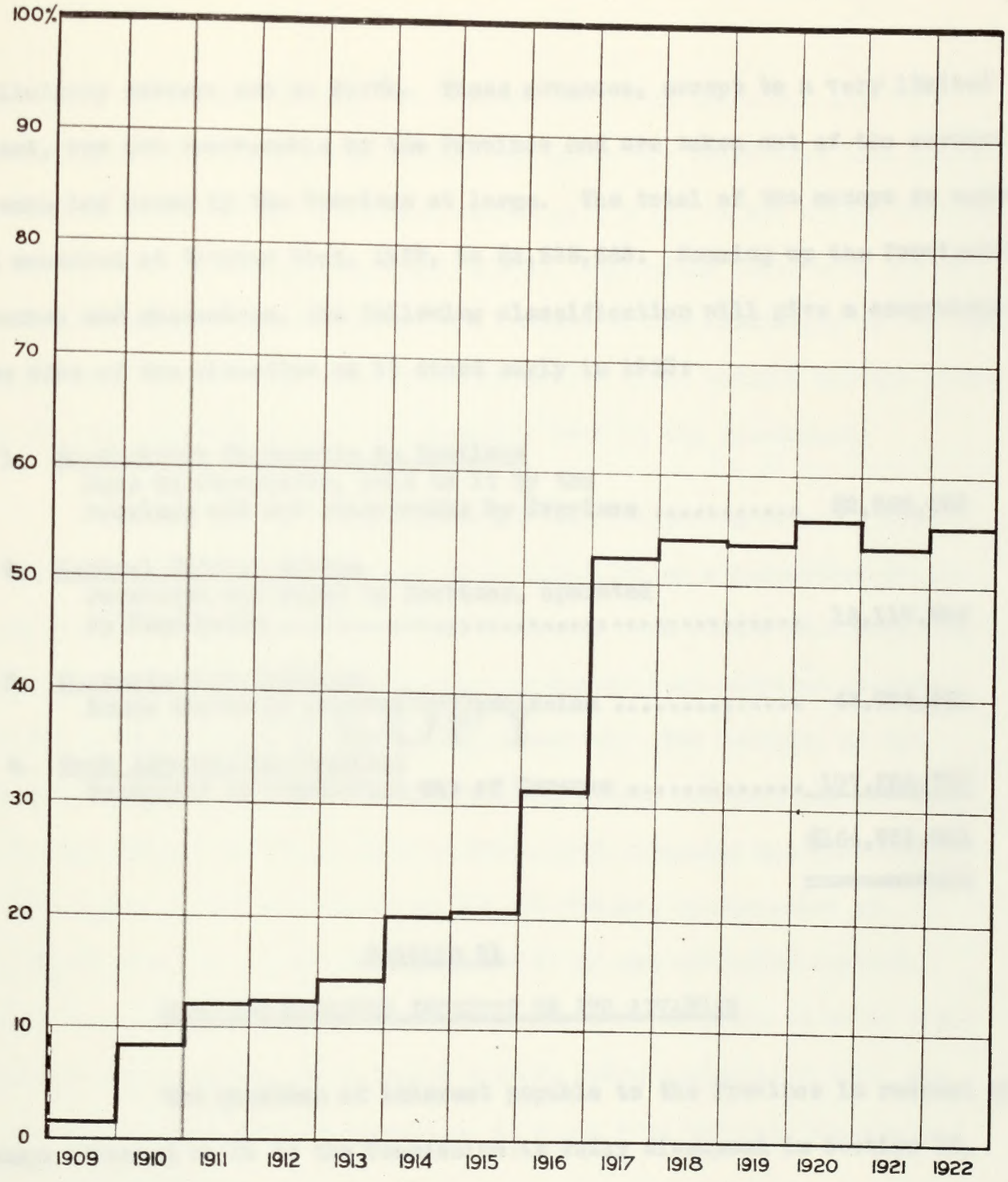
Section 20

NATURE OF PROVINCIAL LIABILITY

It will be noted from the statement in the preceding section that the total net liability of the Province in respect of all works operated by the Commission as of March 31st,1923, amounted to approximately $160,000,000. The total Provincial debt as at October 31st, 1922, was $288,000,000 including direct liabilities of some $241,000,000, and indirect liabilities of some $47,000,000, so that the liabilities incurred for the Commission and the Central Ontario System which is operated by the Commission constitute more than half the total liabilities of the Province. We illustrate this by means of two charts, the one on page 22 shows the total Provincial liabilities compared with the liabilities incurred by the Province on account of the undertakings of the Commission and the Central Ontario System. It will be noted from this chart that the great increase in the Provincial debt is largely accounted for by reason of the advances and guarantees which it has made or given to the Commission. On page 131 another chart is given which shows a similar comparison on a percentage basis. It will be seen that, in 1922, more than 55% of the total liabilities of the Province are accounted for by advances made or guarantees given to the Commission by the Province and by the outlay made by the Province in respect of the Central Ontario System. It would be difficult to show in a more graphic manner the rapid development that has taken place in the operations of the Commission.

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The statement submitted by Mr. Clarkson does not include certain payments made by the Province to the Commission to cover the cost of



TOTAL PROVINCIAL LIABILITIES ——————

TOTAL H.E.P.C. AND CENTRAL ONTARIO SYSTEM CASH ADVANCES AND OTHER LIABILITIES ——————

HYDRO-ELECTRIC INQUIRY COMMISSION

TOTAL PROVINCIAL LIABILITIES COMPARED WITH THOSE INCURRED BY THE PROVINCE ON ACCOUNT OF THE HYDRO-ELECTRIC POWER COMMISSION AND THE CENTRAL ONTARIO SYSTEM ON A PERCENTAGE BASIS

September 11th, 1923

preliminary surveys and so forth. These advances, except to a very limited extent, are not recoverable by the Province and are taken out of the current revenue and borne by the Province at large. The total of the moneys so expended amounted at October 31st, 1922, to $2,525,663. Summing up the Provincial advances and guarantees, the following classification will give a comprehensive idea of the situation as it stood early in 1923:

1. Expenditure Chargeable to Province Made by Commission, paid to it by the Province and not recoverable by Province	$2,525,663
2. Central Ontario System Purchased and owned by Province, operated by Commission	12,117,708
3. Guarantees by Province Bonds issued or assumed by Commission	42,994,831
4. Cash Advances by Province Repayable by Commission out of Revenue	107,282,799
	$164,921,001

COPY

Section 31

PROVINCE RECEIVES INTEREST ON ITS ADVANCES

The question of interest payable to the Province in respect of moneys advanced by it to the Commission is fully discussed in Section 15, Part V of this report, which deals with the subject of "Power at Cost". As pointed out in that section, our separate report entitled "Cost of Money Advanced to the Hydro-Electric Power Commission by the Province of Ontario" also deals fully with that subject. We will not, therefore, refer again to

this question, except to say that the Commission is now regularly and fully meeting all payments with respect to interest on moneys which have been advanced to it for the purpose of the undertakings over which it has direct control, except in the case of the Nipigon Development. This means that, with the exception mentioned, the municipalities are charged by the Commission in the cost of power, interest on moneys expended on works for their benefit and the Commission is in turn required to pay this interest over to the Government.

The sum on which the municipalities are paying interest does not amount to the total cash advances of $107,000,000 as a proportion of the interest is charged against revenue from contracts with others than municipal corporations, and in some cases collection of interest is deferred on part of the cost of works as being non-operating capital. For example, of the $21,411,439.63 capital cost of the transmission lines, sub-stations and so forth, of the Niagara System to October 31st, 1922, interest was payable to the Commission by municipalities on $16,543,465.04, by companies on $2,621,743.63, and none at all on $2,246,230.96 of non-operating capital. The amount termed non-operating capital represents investments in works under construction and so forth, the interest thereon being capitalized until the works are completed and put in operation, at which time interest charges to municipalities commence.

COPY

Section 32

METHOD OF LIQUIDATING PROVINCIAL LIABILITY

The terms and bases upon which the municipalities, and, in turn, the Commission, are repaying the cost of the undertakings of the Commission as

enumerated above, is discussed in detail in our report entitled "History and General Relations", and the methods by which sinking fund is collected is discussed in this report at some length in Section 16, Part V, "Power at Cost", under the subject of "Sinking Funds". The previous discussion in this report touched only briefly certain important matters which have a direct bearing upon the Provincial liability.

1. Expenditure Chargeable to Province - $3,525,663.

This sum represented expenses incurred by the Commission in respect of engineering assistance and estimates prepared for the municipalities not under contract; general surveys; excess of expenditures over revenues arising in connection with the Electrical Inspection Department, investigations, surveys and so forth in respect of Hydro-Electric Radial Railways and other matters, together with that portion of the Chairman's salary which is paid by the Province. The amount is not recoverable but will remain a contribution by the Province as a whole toward the undertakings and works controlled or managed by the Commission unless the municipalities, which are interested, decide to take power, or the proposed railways are constructed, in which case a small part of the above amount may be repaid to the Province.

COPY

2. Central Ontario System - $12,117,708.

As pointed out in our report on the "Central Ontario System", and our report on "History and General Relations", of the investment by the Province in the Central Ontario System, provision has been made for the repayment of only four per cent., or about $420,000. The sinking fund accumulations in respect of this sum as at October 31st, 1922, amounted to only $37,342.02. As we have already stated, steps should, in our opinion, be taken to place this undertaking on a power-at-cost basis, to be administered under the

provisions of The Power Commission Act, and the whole system brought into line with other systems throughout the Province.

3. Guarantees by Province - $42,994,831

This amount is made up of:

A. Bonds issued by the Commission and guaranteed by the Province in respect of:	
(a) Purchase of Essex System	$ 226,000
(b) Purchase of Thorold System	100,000
(c) Purchase and rehabilitation of Sandwich, Windsor & Amherstburg Railway	3,000,000
(d) Port Credit-St. Catharines Railway (deposited with the Bank of Montreal as security for a loan of $500,000)	1,200,000
(e) The Ontario Power Company	11,200,000
(f) "Clean-up" Deal - Power	619,000
Radial	2,375,000
B. Bonds of:	
(g) The Ontario Power Company, inclusive of bank loans	11,891,000
(h) Toronto Power Company - payment of which was assumed by the Commission and guaranteed by the Province	12,383,831
	$42,994,831

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We have pointed out in our report entitled "History and General Relations", that the repayment of these bonds is not assured as yet by the adoption of any uniform sinking fund policy. The details of repayment will be found set forth in our reports on the respective systems affected, and a general summary thereof contained in our report just mentioned. We point out here, however, that in some cases the sinking fund now being set aside if continued will be sufficient to retire certain of the obligations at maturity. In other cases a forty-year sinking fund basis has been adopted. In other instances no sinking fund is being set up at all. On the whole, the policy adopted by the Commission in respect of this bonded indebtedness is far from satisfactory

and the question arises as to whether the Commission is justified in not setting up a sinking fund in respect of these bonds in the same manner as it sets up sinking fund in respect of cash advances made to it under the terms of The Power Commission Act. If the course taken by the Commission in this respect be proper, it follows that it rests with the Commission to decide as to whether or not it will set up sinking fund in respect of bond issues. Commenting upon this matter in our report entitled "History and General Relations", we say:

> "Did the Legislature intend to confer upon the Commission such authority or did it intend that outstanding bond issues should be treated in the same manner as cash advances, and sinking funds provided in respect thereof, under the general terms of the Power Commission Act?"

4. Cash Advances by Province - $107,282,799

The manner in which sinking fund is collected by the Commission from the municipalities in respect of cash advances and the manner of its payment to the Province by the Commission is discussed in various system reports and in our report entitled "History and General Relations". As pointed out in these reports, the basis of repayment under the terms of The Power Commission Act is such that in a thirty-year period a sufficient sum will be accumulated for the repayment of all advances. In the case of the Thunder Bay System this procedure has been departed from and the municipalities are paying on a forty-year basis, but this arrangement was confirmed by the Legislature. In respect of the Queenston-Chippawa Power Development, the Commission has interpreted Section 5 of The Ontario Niagara Development Act, 1917, as authorizing it to collect payment on sinking fund account as it may deem necessary and proper. Originally when submitting to the Government its estimates as to the cost of power from this Development, a thirty-year sinking fund basis was adopted. In estimates submitted to us it now adopts a basis of forty years

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commencing at the expiration of five years, with the result that the annual price of Niagara power for a long period will be substantially less than it would be with a thirty-year sinking fund basis.

The question again arises as to whether the Legislature intended to confer upon the Commission the authority to fix the sinking fund period in respect of advances made to meet expenditures on the Queenston-Chippawa Power Development.

The Commission is required by The Power Commission Act to invest all payments received by it on sinking fund account from municipal corporations and others, in bonds of the Province and to deliver these securities to the Treasurer of Ontario as security for repayment of the advances made by the Province to the Commission. The bonds so delivered to the Treasurer of Ontario are the only direct security the Province can secure for its advances to the Commission.

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Attention is here directed to the fact that The Power Commission Act defines only the basis upon which payments on sinking fund account are made by municipal corporations. A considerable proportion of the capital cost of works serving municipal corporations is not included in the amount in respect of which interest and sinking fund payments are collected from these municipal corporations, but is apportioned to private companies, and the Act is silent as to a basis of sinking fund for such proportion. Again, the Act contains no provision for establishment of sinking funds in respect of such expenditures as those on the Thorold, Essex and Bonnechere River Storage Systems. With respect to these matters it would appear that The Power Commission Act is defective and that some provision should be included therein whereby procedure in such

cases is brought into conformity with the general spirit of the Act.

Section 33

PROVINCIAL RESPONSIBILITY AND CONTROL

It is clear that the Province, acting as the banker for the Commission or as the guarantor of its outstanding bonded indebtedness, has a very definite and direct responsibility. We have shown the nature and growth of this responsibility and it is clear that with the continued demand for increased amounts of power, the Provincial liability will continue to grow. The growth in the past has been very rapid, but there is every reason to believe that the growth in the future will be even more rapid. At the present time the interestsof the Province on the one hand may be said to represent about a 98% ownership of the undertakings of the Commission, the municipalities having acquired a proprietary interest, through the payment of sinking funds, of something less than 2%.

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We have shown that in respect of the bonded indebtedness of, and cash advances for, the "Greater Niagara System",* the Province, instead of being relieved of its liability at the end of a period fixed by The Power Commission Act, will still remain directly or indirectly liable to an amount in excess of $37,000,000. (This amount is predicated on the conditions outlined in our report on the "Niagara System".) We have shown that by virtue of special legislation the Commission has deemed itself competent to fix sinking fund on

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*- The term "Greater Niagara System" is used by us to indicate the inclusion of all the power plants at Niagara which serve the "Niagara System" and which system up until October 31st, 1922, did not include those power plants. For details see our report on the "Niagara System".

the Queenston-Chippawa Power Development on a forty-year basis instead of a thirty-year basis as prescribed by The Power Commission Act. It is obvious, then, that, while the responsibility of the Province is an ever-increasing one, its control is constantly being lessened.

This condition of lessened control applies also in the case of guarantees given by the Province. According to the Auditor of the Commission's accounts, Mr. G. T. Clarkson, the Commission has always contended that the guaranteed bonds of the Commission or the guarantee of the payment of bonds issued by the Commission by the Province is not an "advance" within the meaning of The Power Commission Act, and that, accordingly, the Commission is not required to adhere to the sinking fund basis set out in Section 23 of the Act. When the Province advances cash for the purpose of the Commission it nearly always has to borrow the money on the security of its own bonds. There is no essential difference between the liability of the Province in respect of its own bonds, from the proceeds of which it makes cash advances to the Commission, and its liability in respect of bonds issued or assumed by the Commission, payment of which is guaranteed by the Province.

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In the last analysis the guarantee of bonds by the Province is a liability just as direct and just as real as its liability in respect of its own bond issues. In the event of default in the payment of principal or interest in respect of the bonds, payment of which is guaranteed, there is no doubt that the bondholder would look directly to the Province for payment in satisfaction of his claim. The value of the Provincial guarantee is evidenced by the fact that the Commission has requested the Province to

guarantee each and every bond issue issued by it in connection with its power undertakings. Indeed, the section of the Act in which the bonds of the Commission are guaranteed by the Province authorizes the Lieutenant-Governor in Council "to make arrangements for supplying the money necessary to fulfil the requirements of the said guarantee or guarantees, and to advance the amount necessary for that purpose out of the public funds of the province".

We have shown that the employment of diverse bases by the Commission in the collection of sinking fund amounts to a real advantage to the Niagara System and a distinct discrimination against the other power systems. Aside altogether from this phase of the question, the practice now followed is placing the Province in the anomalous position of taking full and complete responsibility for all capital invested in the works of the Commission without having any control over the terms of repayment of a greater part of the moneys so invested. The question to which we have once or twice already referred again arises. Did the Legislature intend that such a condition should exist? If not, then those works acquired by the Commission through the purchase of operating companies, and the Queenston-Chippawa Power Development, together with all undertakings which may be built in the future, should be placed in the same position in respect of sinking fund payments to meet bonds issued or assumed or moneys paid as cost of the work, as are sinking fund payments to repay advances of the Province to meet the cost of works for the benefit of contracting municipal corporations under the terms of The Power Commission Act. The Commission cannot rightly be required to pay to the Province interest

and sinking fund on certain outstanding bonded indebtedness, for these payments must go to the bondholders under the various trust deeds, but the Province can require the Commission to fix a definite policy and set up a fund to liquidate its indebtedness in respect of these bonds as is provided in The Power Commission Act in respect of cash advances made to the Commission by the Province. Cash advances and guarantees are for the same purpose, namely, to provide for the cost of works serving contracting municipalities. If and when this is done, the spirit of the Statute will have been fulfilled.

Section 34

MUNICIPAL LIABILITY.

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The subject of municipal liability for repayment of expenditures made by the Commission out of advances by the Province to meet the cost of works undertaken by the Commission has been discussed in Part V of this report under the heading "Power at Cost", and has been dealt with in some of our previous reports, notably that entitled "History and General Relations", to which we refer Your Honour for what we have sought to make a comprehensive statement on the subject. We, therefore, do not propose here to make extended comments on this matter, but merely to state generally its outstanding features.

Municipal liability is closely associated with Provincial liability; consequently, this section should be read in conjunction with the sections immediately preceding. Dealing only with cash advances, as pointed out by us, the Province alone is liable for repayment to the lenders of the $107,000,000 advanced by the Province to the Commission for power undertakings. No municipality has guaranteed the bonds issued by the Province or issued its own bonds

to secure the Province for its advances, so of these large bond issues not one cent is a direct liability of the municipalities or of any of them. In their financial statements the municipalities served by the Commission do not include any indebtedness in respect of these advances.

Not only are the municipalities free from liability to the lenders of the money, but they are free from any direct liability to the Province itself. In case of default the Province could not recover judgment against the municipalities for a single dollar.

While neither the Commission nor the municipalities are liable on the bonds, the Commission is required by Section 15(1a) of The Power Commission Act to pay over to the Government year by year a sum sufficient to pay the annual cost to the Government of its advances to the Commission, and each municipality served enters into an agreement with the Commission to pay for the power received from the Commission under contract a price which will repay the interest and also cover the amount required to be put aside to form a sinking fund sufficient to repay the advances of the Province to meet the cost of the respective works.

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The payments on sinking fund account, received by the Commission from the municipalities, are required by the Act to be invested by the Commission in Provincial securities, and these are deliverable to the Treasurer of the Province as security for its advances. In this indirect way the municipalities repay to the Province its advances for the cost of works constructed

by the Commission for their benefit. The agreements entered into by municipal corporations with the Commission include in their terms of payment for power supplied, provisions similar to those contained in Section 23 of The Power Commission Act.

In case of default by any municipality, the Commission could sue the municipality under Section 22 of The Power Commission Act for enforcement of the contract entered into by the municipality, or it might, in the alternative, refuse to supply more power until arrears were paid. The deficit in respect of the Nipigon Development, which we are informed, amounted as at October 31st, 1923, to over $500,000, is a concrete example of what has occurred in one case. No proceedings to collect this deficit have been taken and it will doubtless be overcome in time, but it shows what a real liability the Province incurs in making advances, and how helpless it is to recover when the interest on its advances gets in arrears. If similar default were made by any other municipality, the inability of the Government to collect would again be shown.

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In the matter of Provincial liability for the bonds, out of the proceeds of which cash advances are made, there is another broad question, namely, that of the possibility of a great advancement being made in the science of developing electricity or in generating power from other sources. If scientific discoveries should render obsolete the works now completed and power could be secured by municipalities at a lower price than they would have to pay to the Commission, the Commission would be likely to find it most difficult to get the municipalities to take power from it. It is true, of

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course, that the Province, through the Legislature, would have power to enforce payment, but it is well known that any Government is a poor hand at forcing collection from its constituents. If such conditions should arise the Province might be left with the enormous liabilities which it has incurred for advances to the Commission, and with little prospect of collecting.

The foregoing discussion has been in reference to cash advances but it is to be noted that the liability of the municipalities in respect of bond issues guaranteed by the Province is not relatively different from its liability in respect of cash advances.

We believe that the present method of financing the undertakings of the Commission is the most practicable one, and that in any event we have gone too far under the present plan to make it possible to retrace our steps, but if we were starting anew there would be much to be said in favour of adopting a course similar to that adopted in respect of advances for the construction of radial railways where each municipality is required to pledge underlying bonds to the extent of the expenditure made on its behalf. Such procedure would give the Commission, and, in turn, the Government, a direct right of recovery in case of default. The municipalities would know where they stood and would be likely to keep in closer touch with expenditures on their behalf. With the accumulation of sinking funds payable by the municipal corporations, the underlying bonds provided by them could be returned in instalments proportionately to their contributions to sinking fund account.

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PART IX - RELATION OF COMMISSION TO PRIVATE ENTERPRISE

Section 35

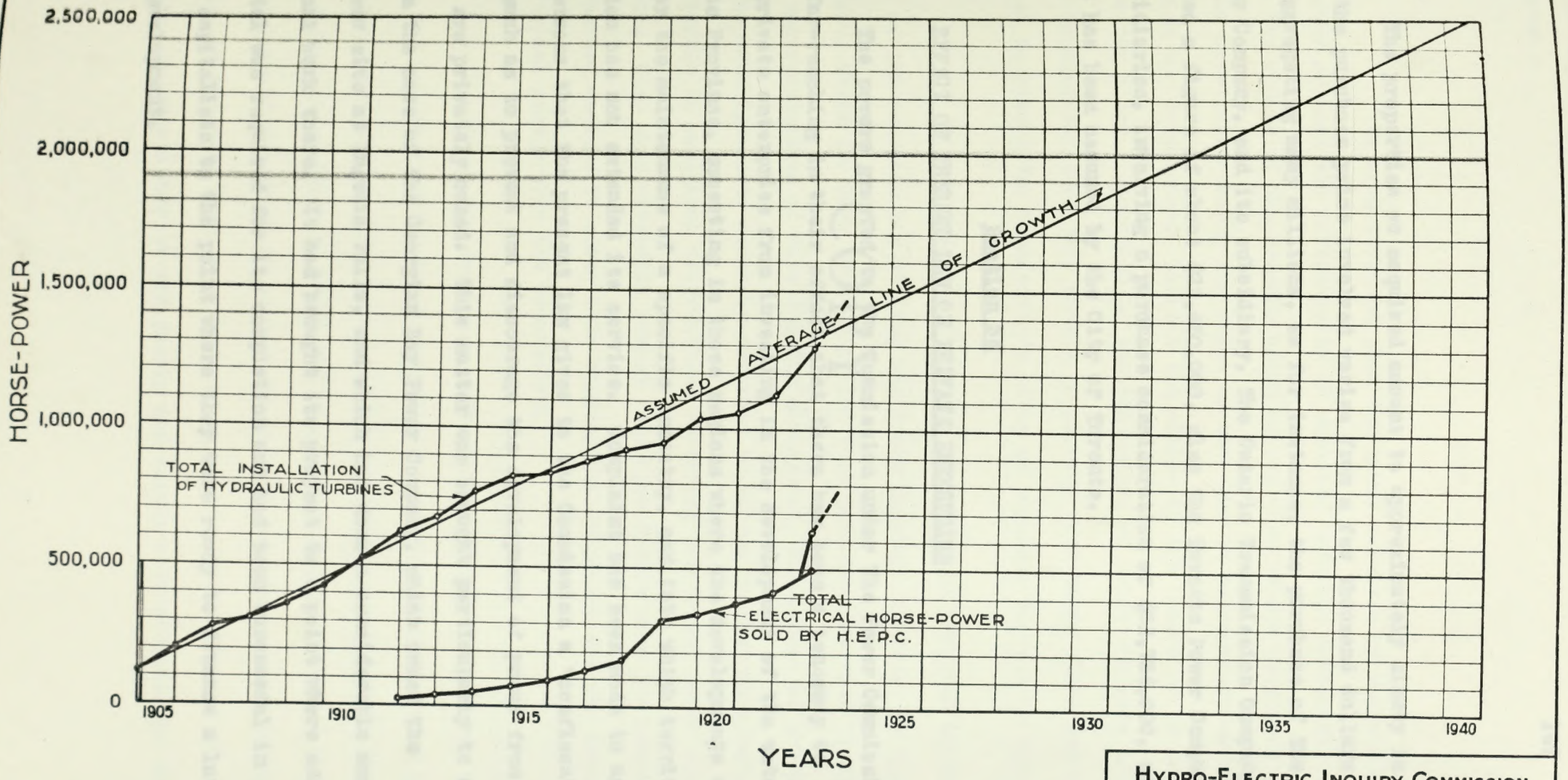
G E N E R A L

In our report entitled "History and General Relations", we have illustrated the growth in the hydro-electric movement in Ontario by the use of a chart prepared for us by our Consulting Engineer, which we repeat here as page 146.

From this diagram it will be noted that about six years before the Commission came into active operation, there was about 125,000 horse-power developed in the Province and by the time the Commission actually began to deliver power in 1911, the installed capacity had grown to about 625,000 horse-power. At the end of 1922, the power sold by the Commission represented about 50% of the total installed capacity of the combined public utilities and privately-owned enterprises in the Province.

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Under the terms of The Power Commission Act, the Commission has authority to purchase or expropriate the undertakings of private companies which may be required in the operation of the works of the Commission, or necessary for the distribution of power within the municipalities. That this authority has been largely exercised is evidenced by the number of properties which have been acquired by the Commission or the municipalities as shown by a list supplied to us by the Hydro-Electric Power Commission, which list is included in our report entitled "History and General Relations".



HYDRO-ELECTRIC INQUIRY COMMISSION
W. D. GREGORY, CHAIRMAN

ECONOMICS OF H. E. P. C. DISTRIBUTION SYSTEMS

TOTAL HYDRAULIC INSTALLATION IN THE PROVINCE OF ONTARIO

Toronto, June 23rd, 1923. Made by [illegible], Checked by [illegible]

WALTER J. FRANCIS & COMPANY
CONSULTING ENGINEERS

146

The properties so acquired amount to approximately ninety in number, and the purchase price involved varies from a few thousand dollars to figures aggregating many millions, as for instance, the purchase of The Ontario Power Company, and its subsidiary, The Ontario Transmission Company, which involved a figure of about $22,450,000, also the Toronto Power Company and its subsidiaries, involving a purchase consideration of $32,734,000, of which a part has been assumed by the City of Toronto.

Section 36

EFFECT OF PRESENT LAW ON PRIVATE ENTERPRISE

COPY

The powers granted to the Commission under The Power Commission Act are so far-reaching in their effect that there has been a tendency to discourage private enterprise from investing in the development of the water powers of the Province, excepting in those regions where the developments are essential for the maintenance of a specific industry, and into which territory the Commission has not extended its service. Complaint has been made to us by different persons that the present law gives to the Commission a "confiscatory authority" such as to prevent and discourage the development of power from leases that are privately owned. This matter was brought particularly to our attention in the case of the Georgian Bay Power Company, which owned the original power site at Eugenia Falls, and which had done a considerable amount of development work there. It had brought its project to a point where additional capital was required for its completion and had been successful in interesting capitalists to the point where they were ready to finance a large scheme of development.

We were informed that the legal advisers of these capitalists reported against the advisability of entering into the scheme for the reason that the rights of the company might at any time become valueless on account of the Commission having the right at any time to expropriate or otherwise acquire the development, against the wishes of the owners or to establish a competing plant. According to the statements of those who were interested in this development they were unable to proceed with their plans and were finally forced to accept the Commission's offer of purchase for all of their rights.

A case somewhat different from the one referred to above, is that of the Georgian Bay Milling and Power Company, Limited, of the Town of Meaford, which for many years supplied that municipality with light and power. The representatives of this company claim that, on account of the provisions of the Municipal Act, commonly referred to as the "Commee Clauses", not being applicable to municipal corporations receiving electrical power from the Commission, they were virtually forced into liquidation when the municipality of Meaford decided to enter into contractual relations for the supply of electrical energy from the Commission.

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These two cases are referred to not for the purpose of reflecting upon the manner in which the Commission has conducted and carried out the various transactions which have been investigated by us, but as illustrating the difficult position in which the Commission is placed when acting on behalf of municipalities which it serves and whose interests must be safeguarded, while, at the same time, as a body corporate representative of the general public, it owes a duty to act justly and fairly with citizens of the Province

who have in good faith invested their money in enterprises, from which doubtless they expected to reap a personal benefit, but which at the same time have been of public service. A public body possessing the great powers conferred upon it by the Legislature should always be careful to use these powers with fairness and moderation.

The provision in the Act of 1906 and subsequent Power Commission Acts, that the so-called "Commee Clauses" of the Municipal Act should not apply to municipal corporations under contract with the Commission, was one that clearly differentiates these Acts from the Act of 1903. The "Commee Clauses" in effect required municipalities, in which any private company operating gas, electric light, heat or power, or water works was located, to make an offer to purchase the works and franchises of such company before entering into any scheme for the construction and operation of such public utilities. These Clauses were declared not to be affected by the Act of 1903. In the debate on the Bill introduced at the Session of 1906, the Honourable Mr. Whitney stated that he thought there would be no expropriations but that if there were no power of expropriation the Bill would be worthless. Shortly after the passage of the Act, the Chairman of the Commission speaking at Galt on July 24th, 1906, said:

COPY

> "The Bills of 1903 and 1906 have repeatedly been compared. The difficulty we found in the old Bill was that we were operating under the Commee Bill."

The "Conmee Clauses" were repealed in 1913, but it was provided that such repeal was to come into effect only on the proclamation of the Lieutenant-Governor in Council. Such proclamation, we understand, has not yet been issued, so that any municipality in which a private company or individual is operating and which has not entered into a contract with the Commission for a supply of power cannot construct or operate a power generating and distributing plant of its own without following the procedure laid down in the Clauses.

It is pertinent here to draw attention to the methods adopted by the Commission in acquiring rights-of-way for its transmission lines. We have been informed that the agreements practically forced upon owners of property over which the Commission desires a right-of-way are such that the value of the whole property is seriously depreciated and inadequate compensation is paid for the rights granted. It appears that under these agreements the Commission may erect its poles, towers and other appliances not only along specified tracts of the property of the person with whom the agreement is made, but may at any time change the location of its lines and use any other portions of such person's property. The value to a present owner or prospective purchaser of property subject to such an agreement, is necessarily less than if the agreement merely provided for a right-of-way on a defined course.

COPY

Section 37

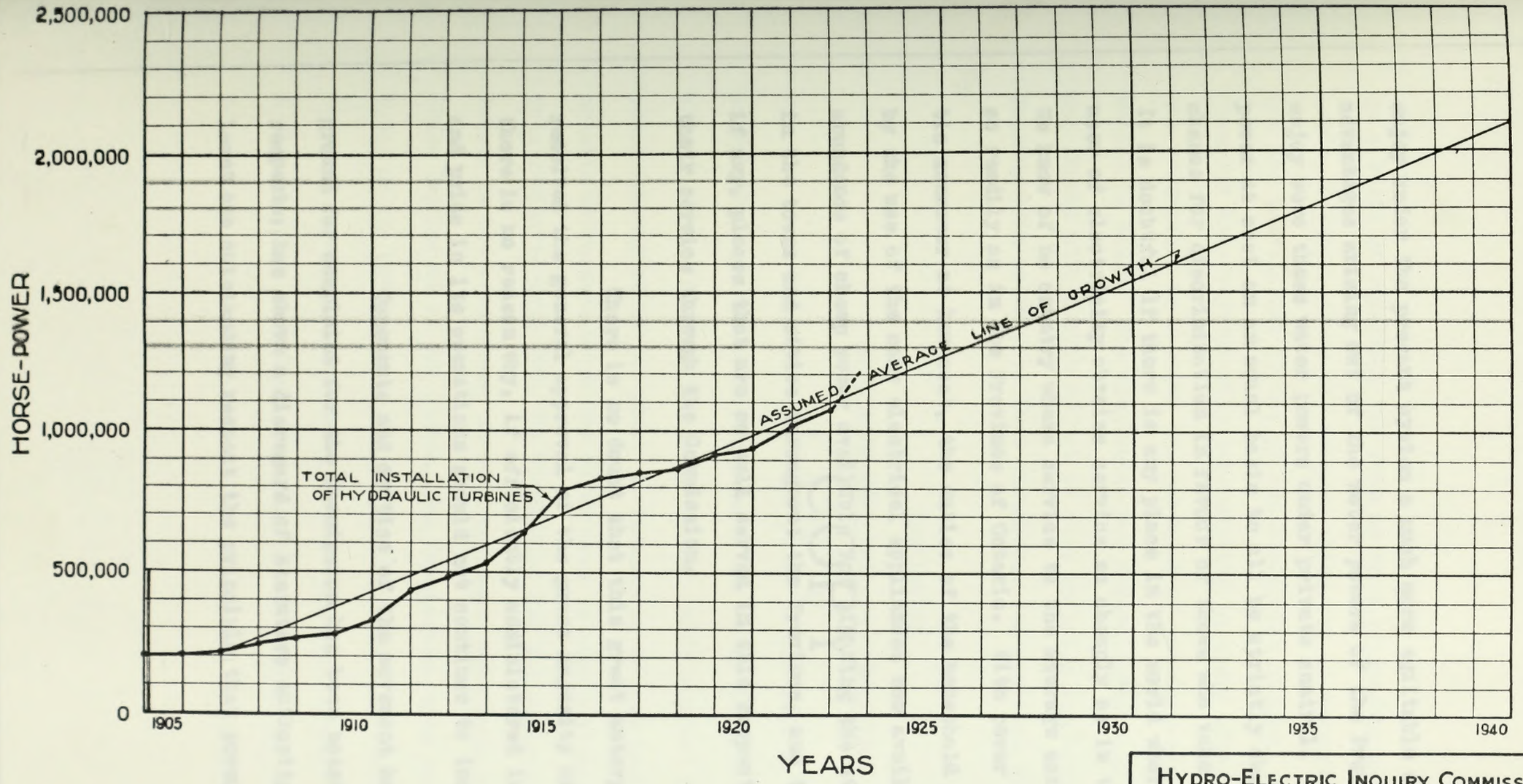
SPECIAL ADVANTAGES OF PRESENT SYSTEM

By reason of the very extensive activities of the Hydro-Electric Power Commission, the Province of Ontario is often referred to as a public ownership province, and the neighbouring Province of Quebec referred to as a private enterprise province. In comparing conditions here with those in the Province of Quebec, it is interesting to note the progress made in both Provinces with respect to hydro-electric development.

We have included as page 146 a chart showing the growth of hydraulic installation in the Province of Ontario, and we now include as page 152 a similar chart of conditions obtaining in the Province of Quebec for the same period. It will be noted that the Province of Quebec in the year 1905 had an installed capacity of about 200,000 horse-power, and that this amount has increased year by year to 1,090,000 horse-power at the end of 1922. Thus, it will be seen by straight comparison, that Quebec has about 210,000 horse-power less than Ontario, though when comparison is made on the basis of population, the amount per capita is practically the same for both Provinces.

COPY

The result of such a comparison should not, however, lend to the belief that there are no special advantages arising out of the public control of the development and distribution of electrical energy. We are firmly of the belief that the people of the Province of Ontario at large,



HYDRO-ELECTRIC INQUIRY COMMISSION
W. D. GREGORY, CHAIRMAN
ECONOMICS OF H. E. P. C. DISTRIBUTION SYSTEMS

TOTAL HYDRAULIC INSTALLATION IN THE PROVINCE OF QUEBEC

Toronto, June 23rd, 1923. Made by [illegible], Checked by [illegible]
WALTER J. FRANCIS & COMPANY
CONSULTING ENGINEERS

152

enjoy under the present system a much more equitable distribution of the advantages arising out of the water powers of the Province than they would enjoy were these water powers under private control. If the principle of power at cost on an equal basis to all be strictly observed there is no chance for discrimination in favour of those who take big blocks of power. It is doubtful if there is any place in the world where the average domestic user of electricity obtains service so cheaply as in the Province of Ontario. We know of no country where service to the average consumer may be obtained so readily as in the Province of Ontario. With power available to the domestic consumer at low cost, the duties of the household are greatly lightened by the use of the many electrical appliances now available. There is an abundance of cheap power available for lighting the streets and public places in the towns and cities throughout the Province, and there are probably few, if any, places that are so well served in this respect as those which obtain their service through the Commission.

COPY

There is no doubt that this great enterprise has earned and received the general approval of the great majority of people of Ontario, and there is no reason why, if efficiently administered in the future, confidence and pride in its operations should not continue to increase.

Opponents and critics of the movement have had in the past some ground for complaint for the Commission has been notably deficient in some respects; has shown a disregard of statutory authority and has upset in at least one outstanding respect the principle that power is distributed to all

on a basis of equality, the same as that originally contemplated. Fortunately, however, these are matters which can be corrected by the Government and the Legislature if not by the Commission itself. They are things which have not been sufficiently far-reaching in their effect to harm beyond repair the foundation upon which the movement of publicly-controlled power distribution is based. The Commission has accomplished many great and notable things and should with little effort be able to bring its methods of administration in harmony with principles that strengthen the position that it now holds.

Section 39

CONTRACTS WITH PRIVATE CONSUMERS.

COPY

Generally speaking, power is not sold by the Commission to private consumers on a cost basis, but under the terms of agreements wherein a definite rate is fixed, much in the same way and under similar terms that a private power company sells its power to industries or manufacturers. There is one notable difference which has given rise to some criticism, namely the flat rate contracts made with the Commission are not enforceable in the civil courts in the same manner as contracts made with private development companies. Under the law as it now stands, the Commission, upon failure to live up to the terms of its agreement, cannot be sued by the other party unless a "fiat" is obtained from the Government. No case has been brought to our attention where a fiat has been definitely refused, but it is felt by many that the position of security in which this condition places the Commission has a tendency toward

YDRO-ELECTRIC INQUIRY COMMISSION
PY FOR ENCLOSURE TO

making the Commission over-bearing, and in some cases autocratic, in its treatment of its customers. Not long ago, the Attorney-General of Ontario, from whom a "fiat" had to be secured, was a member of the Commission himself, so that no action in which some transaction of his as a member of the Commission was called in question, could be begun except with his consent.

While we can see no special reason why contracts made with the Commission should not be of an enforceable nature in the same manner as contracts made with private companies, the interest that the Province as a whole has in the undertaking doubtless has some bearing on this phase of the subject. It is largely a matter for consideration by the Government and the Legislature.

COPY

Since the municipalities under their contracts are required to pay the cost of the power, it follows that, if the Commission makes a profit on its flat rate contracts with private users of power from works in which the municipalities are interested, the municipalities will receive the benefit of such profit through cost being reduced in proportion. In like manner if losses are sustained by the Commission, the municipalities must bear such loss and their power costs are increased accordingly.

In each of our system reports we have set forth in the form of a profit and loss statement, the results of these agreements with private consumers and have shown in what manner and to what extent it has affected the power costs to the municipalities. When the Commission purchased The Ontario Power Company and its subsidiary, the Ontario Transmission Company,

HYDRO-ELECTRIC INQUIRY COMMISSION
COPY FOR ENCLOSURE TO

Limited, it took over contracts that were in force at that time, and where there are losses on such contracts, the difference is being borne by the municipalities of the Niagara System. In other systems, contracts made by the Commission have in some cases shown losses and in other cases, profits, but on the whole the conditions have been satisfactory in these systems.

In the Central Ontario System, which, as we have noted, is a Province-owned property, and not under the provisions of The Power Commission Act, there are many losing contracts with private users, and with municipalities which have flat rate contracts. These contracts, like those which were assumed by the Commission when it purchased The Ontario Power Company, were undertaken by the Province when it purchased the properties and rights of the prior owners. Since this system is not a system within the meaning of The Power Commission Act, and since the majority of municipalities and power users are on flat rate contracts, the municipalities as a whole do not share in any profits that are made, nor are they called upon to bear the losses.

COPY

As shewn by our Accountants' report on this system, substantial losses have been incurred year by year, resulting in a total loss from flat rate contracts of $169,957.19 for the three years ending October 31st, 1921. The Province as owner of the system is, therefore, the loser in this case, for it must advance sufficient funds to meet any deficiencies that occur in the operation of the system and must continue to do so until the whole is brought into conformity with and operated under the general provisions of

YDRO-ELECTRIC INQUIRY COMMISSION
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The Power Commission Act, or flat rate contracts expire and are renewed on a higher or cost basis.

In the Bonnechere River Storage System a peculiar situation exists. The Town of Renfrew appears to be the only contributor to the cost of the storage works, which cost was met by Provincial advances. The town disputes liability to repay the whole cost, but has been paying what it considers is its proportionate share of interest and sinking fund on capital cost. The position of the Province, the Commission and the Town of Renfrew is obscure and should be clarified by adjustment, or legislation, so that the respective rights of ownership in the works, present and prospective, may be determined.

COPY

On reference to our report on the so-called Essex and Thorold Systems and Bonnechere River Storage System, it will be seen that municipal corporations and others in the Essex System and in the Thorold System (except the Town of Thorold) are supplied with power on a flat rate basis, by the Commission. The municipal corporation of the Town of Thorold is now part of the Niagara System, and in the same position as other municipal corporations therein. Provincial advances have been made and guarantees of the Commission's bonds given in respect of expenditures on works and franchises of the two systems. There appears to be no clear provision in The Power Commission Act to cover such a situation. Losses, if any, incurred in connection with Provincial advances and guarantees, would doubtless have to be borne by the Province. Should not profits belong to the Province?

Section 39

RELATIONS WITH ELECTRICAL WORKERS

This is a subject into which we did not make any extended inquiries, excepting insofar as the subject relates to the general organisation controlled by the Commission, which subject is dealt with in a later section of this report. We did however, in response to a request from the Electrical Trades Union, hear representations from Mr. Gunn, Secretary of the Union, on their behalf. The principal questions dealt with at the hearing were:

1. The status of the Electrical Inspection Department of the Hydro-Electric Power Commission.
2. Change in the basis of the Hydro-Electric Power Commission so that it will represent the various interests concerned with the satisfactory administration of the Hydro-Electric System.
3. The causes of deaths and accidents occurring amongst the employees of the Hydro-Electric Power Commission of Ontario.
4. What regulations for the safety of the Commission's employees can be devised.
5. Suggestion for the permanent improvement of relations between the Commission and its employees.

COPY

The question of electrical inspection by the Commission is dealt with in this report under the general heading of "Organisation of the Commission." With reference to Questions Nos. 2-5, these all have to do more or less with authority granted the Commission under the terms of The Power Commission Act, to make regulations respecting the safety of its employees. In referring to this Mr. Gunn said:

"I have not the slightest doubt that Hydro is willing and anxious to save life as much as possible, but it does seem to us a sort of anomaly that the power to make safety regulations for the workers exists in the hands of the Hydro, who are practically the greatest employers of electrical employees in the Province of Ontario."

After hearing the evidence on this matter, it is our opinion that while, as a matter of principle, the making of regulations for employees' safety might better be in the hands of an independent body, there is no constituted body in the Province at present more competent to make such regulations than the Commission, and it appears that the work is being done with, at least, a fair degree of satisfaction to all the parties interested. We feel that the testimony given before us does not justify us in recommending a change.

COPY

PART X - TAXATION, RADIAL RAILWAYS, INSURANCE, RURAL LINES AND WATER RENTALS

Section 40

TAXATION

The complaint has frequently been made that the Commission is unduly favoured by reason of the fact that it pays in taxes an amount which is insignificant as compared with the amount required from private companies and others. The full exemption, however, from taxation allowed by Statute to Government undertakings is not open to the Commission, as The Power Commission Act provides that:

> "Notwithstanding anything in the Assessment Act contained, land owned by and vested in the Commission shall be subject to assessment and taxation for municipal and school purposes at the actual value thereof according to the average value of the land in the locality."

COPY

But the Act declares that this provision,

> "shall not apply to or include buildings, machinery, works, structures, substructures, superstructures, rails, ties, poles and other property, works or improvements owned, used or controlled by the Commission, nor an easement or the right of use or occupation or other interest in land not owned by the Commission, but all such buildings, machinery, works, structures, substructures, superstructures, rails, ties, poles and other property, works or improvements owned, used or controlled by the Commission, and every such easement or right, shall continue to be exempt from assessment and taxation as heretofore."

An examination of the property and operating accounts of the Commission will disclose the fact that a comparatively small proportion of

the properties of the Commission is liable to taxation. In the case of companies controlled by the Commission, the provisions of the law as to exemption do not apply and in the case of The Ontario Power Company and the Electrical Development Company, the Commission, by virtue of the original agreements made, is paying much more than it would, were it possible to take advantage of the exemptions given in the Assessment Act.

At our hearing at Niagara Falls complaint was made to us by certain citizens of Niagara Falls and by representatives of the Township of Stamford against certain provisions of The Power Commission Act under which the property of the Commission is largely exempted from taxation. By virtue of a special Act of the Legislature there is a fixed assessment for the property of The Ontario Power Company situate within the limits of the City of Niagara Falls, under which the city probably receives more taxes from the Commission on the property of The Ontario Power Company than it would under the general provisions of the Assessment Act if applicable, but with the Township of Stamford there did not appear to be any agreement as to assessment at the time of our hearing. This township is particularly interested in the subject because property of the Commission of great value lies within its limits. Its representatives expressed their fear that the plant of the Electrical Development Company, which would have been shortly subject of full taxation by the township, will now be largely exempt because it has been purchased by the Commission.

COPY

The parties appearing before us at Niagara Falls presented a statement which showed that the plant of the Niagara Falls Power Company

located in the City of Niagara Falls, New York, was assessed in 1922 for $31,698,010, or nearly one-third of the total assessment of the city, which amounted to $104,909,000. The company appears to have paid in taxes to the city in that year $601,487.16 out of a total of $3,250,084.90 in taxes collected by it.

The exemption from taxation given under The Assessment Act results in lowering the cost of power to the consumers, but the gain to the consumers is equalled by the loss to the taxpayers of the municipalities in which the developments are located. Just why taxpayers of Niagara Falls and the Township of Stamford should pay higher taxes in order that the municipalities of the Niagara System should get cheaper power is a question that does not seem to have been answered to the satisfaction of the taxpayers.

COPY

The exemptions with respect to works of the Commission are applied in the case of the works operated by the municipal Commissions. The radial and street railways, operated by the Commission on behalf of certain municipalities, are also largely exempt from taxation. Taxes payable by private businesses, other than those on real estate, are not collectible from the Commission or municipal Commissions. If the Provincial Commission and the municipal Commissions were required to pay taxes on the same basis as private companies and individuals, the amount required would not appreciably raise the rate paid by the average consumer for electric service, but would prevent the criticism to which we have just referred.

The complaint that the operations of the Commission are specially favoured in respect to taxation as compared with those of private companies was definitely brought to our attention by officials of the Ottawa Electric Company, who appeared before us at one of our public hearings. The City of Ottawa exemplifies, perhaps most clearly, the possibility of discrimination arising in respect of the present method of taxing the works of the Commission. As stated in our report on the Ottawa System, the Commission is supplying power to the municipality in the same manner as it supplies other centres throughout the Province. In addition, however, the Ottawa Electric Company, a company that has been long established, is providing a similar service to a great number of consumers within the municipality, yet the private company must pay all taxes applicable to its operation.

COPY

Questioned on this matter, Mr. J. A. Ellis, Chairman of the Ottawa Hydro-Electric Commission, stated:

> "Speaking for the (Ottawa) Commission, we do not care whether we pay taxes or not."

In reply to our inquiry:

> "You would not offer any opposition to a change in the law which would put you on the same footing as others in the matter of taxes?"

Mr. Ellis answered:

> "No."

Not only the question of exemption from taxation at Niagara of the plant of the Commission, but the whole question of exemption of its property from taxation is a question worthy of careful consideration by the Legislature.

Section 41

RADIAL RAILWAYS

The question of radial railway operations by the Commission has been dealt with in some considerable detail in three separate reports, which we have submitted on this subject. The reports referred to are as follows:

Guelph Radial Railway
Sandwich, Windsor & Amherstburg Railway
and Windsor & Tecumseh Electric Railway
Hydro-Electric Radial Railways
(Toronto-Port Credit Railway and
Port Credit-St. Catharines Railway)

The first two reports mentioned deal with railway systems, which are operated by the Commission on behalf of the municipalities which they serve. These roads were originally operated privately, but, for one reason or another, failed to give the service demanded by the municipalities. The Commission, under the authority of special legislation, stepped in, and by purchase on behalf of the municipalities took over the system.

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As noted in our separate reports, we held hearings in reference to these undertakings, and while there is much adverse criticism of the Commission with respect to the Guelph Radial Railway and the Sandwich, Windsor and Amherstburg Railway, we have found that generally the Commission has greatly improved the service rendered and it is unlikely that the municipalities as a whole would desire a return to previous conditions. Our comments and criticisms on the various matters are set forth in detail in the reports.

In the last-mentioned report, namely, that dealing with the Toronto-Port Credit and the Port Credit-St. Catharines Railways, we point out that this is an instance in which the Commission greatly overstepped its authority with the result that unauthorized expenditures were made aggregating over a million dollars. The moneys used for buying right-of-way and for other purposes were taken from funds held by the Commission in respect of power undertakings and it had no right to divert them.

This is an outstanding case of breach of trust on the part of the Commission. In inquiring into this subject, we find that the Chairman of the Commission, personally, is almost wholly responsible for conditions as they exist today; the evidence in this respect is so definite that in our report we state:

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> "There is also the question of the personal liability of the Chairman for wrongful diversion of trust funds. There is no doubt that if a trustee of a private estate had dealt with the funds of the estate as Sir Adam Beck dealt with the funds of the Power Commission in this case, he would have been compelled to refund the amount taken."

There also enters into the matter the question of municipal liability for the money expended on the radials. The municipalities strongly dispute any liability on their part and will undoubtedly oppose any attempt to make them pay.

One view of the matter is expressed in the last paragraph of our report on Hydro-Electric Radial Railways. We found that as matters stood the

accounts of the Commission were short over $1,100,000. We understand that as of October 31st, 1923, the Province re-imbursed the Commission for its expenditures in connection with the Sutherland Commission amounting to about $336,000 with accrued interest thereon to October 31st, 1923. If this was done the Commission's accounts are still short about $780,000. Whatever sum can be recovered from the sale of right-of-way and so forth, should be recovered and restored to the Commission's Treasury. If it should be found that the amount taken cannot wholly be recovered, and if the Legislature does not see fit to make up the loss, the impairment will have to be borne by Hydro municipalities whose funds have been diverted. Action should be taken as promptly as circumstances permit, for, as Mr. Clarkson says, it is "a very serious matter".

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At the time of our investigation, the Sandwich, Windsor and Amherstburg Railway and the Windsor and Tecumseh Electric Railway, the Guelph Radial Railway and the Peterborough Street Railway were all losing money. In our report on the Sandwich, Windsor and Amherstburg Railway and the Windsor and Tecumseh Electric Railway, we stated that in our opinion they would soon be on a paying basis, and we understand that these roads are now paying their way. They should continue to prosper. The Guelph Radial Railway and the Peterborough Street Railway are still, we believe, losing money, and, in our opinion, are likely to continue to show an annual loss. In our report on the Central Ontario System, we dealt with the Peterborough Street Railway and there is little to add to what we said. It was taken over by the Government with a number of other properties, its owners insisting on selling all in one

block. Its loss for the year ending October 31st, 1932, was $34,210.20. We understand that in the following year the deficit was less. It seems most unlikely that the railway will pay or that the municipality will take it off the Government's hands.

The Toronto-Port Credit Railway and the Port Credit-St.Catharines Railway have been fully dealt with by us in a separate report to which we have already referred. The Commission will indeed be fortunate if it succeeds in realizing enough from the assets in its hands in respect of these roads to pay the trust funds which it wrongfully diverted for them.

In our opinion, the Commission made a great mistake in entering into the radial railway field. It had quite enough on its hands and on the hands of its staff in connection with the generation, purchase, sale and distribution of electric power to occupy its whole time and its whole energies. The radial roads have, generally speaking, been a millstone around the Commission's neck. The quicker that it is freed from all connection with them the better it will be for the Commission and for the Province. The course of the Commission in respect of the Toronto-Port Credit and the Port Credit-St. Catharines Hydro Radials has not only discredited it but has deeply injured the cause of public ownership as well.

COPY

Section 42

I N S U R A N C E

Origin and Growth of Insurance Department.

When the Electric Power Company was taken over by the Province and brought under the supervision of the Commission as the Central Ontario System, Mr. John Littlejohn, who had been treasurer of the company and who had up to that time supervised insurance for the company, approached the Commission with the object of taking charge of its insurance matters. The general proposals made by Mr. Littlejohn were approved of by the Commission, and while lacking any definite written instructions with respect to his duties, he has carried on this part of the work for the Commission since that time.

COPY

A hearing was held by us upon the subject of insurance, Mr. Littlejohn and others appearing before us and giving evidence in reference thereto. We are informed by Mr. Littlejohn that when he entered upon his duties he retained his license as an insurance agent which entitled him to a portion of the commission paid by the insurance companies to the agents through whom Mr. Littlejohn placed the insurance. Mr. Littlejohn's share of these commissions was in many cases paid directly into his account and later transferred by him to the general funds of the Commission. Mr. Littlejohn states that in his belief the Department has been of material benefit to the Commission, not only by supervising its entire insurance, but by obtaining in the way just described a share of the commission more than a sufficient amount to pay the cost of his Department.

This arrangement was put into operation and continued until the 30th September, 1922, at which time Mr. Littlejohn's license as an insurance

agent expired. At that time an application was made to the Provincial Insurance Department for a renewal of the license, but the renewal was not granted because of a ruling of the Department to the effect that a license should not be issued to employees for the purpose of receiving a share of the commission on insurance placed on the property of their employers.

Present Policy of Commission

The Commission has adopted the policy of carrying its own insurance in respect of the following risks stating its belief that a material saving can be effected by so doing:

(a) Workmen's Compensation Insurance,
(b) Central Ontario Fire Insurance,
(c) Automobile Insurance.

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The remainder of its insurance, in the amount of approximately $5,000,000 was placed by Mr. Littlejohn with outside companies. A large part of this represented insurance carried on buildings and their contents at Chippawa which, we are informed, were at all times insured to 90 per cent. of the value. Hereunder will be found a statement of the insurance premiums paid by the Commission on insurance placed with outside companies during the period 1919-1921 and of which Mr. Littlejohn received a share for the benefit of the Commission:

Agents	1919	1920	1921	Total
Mortimer & Dampfield	$42,864	$58,080	$196,595	$297,539
A. E. Wilson & Co.	6,282	4,761	9,061	20,104
Maguire & Connon	1,572	15,117	32,741	49,430
T. & J. McMulkin	1,117	2,643	1,582	5,342
Dale & Company	766	17,149	6,468	24,383
R. J. Villiers	444	511	511	1,466
Thompson, Dale & Power	-	516	5,453	3,969
Armour, Bell, Boswell & Cronyn	-	-	1,542	1,542
Lyons & Harvey	-	-	240	240
Wood, Mien & Patterson	-	-	6,732	6,732
Reid, Shaw & McNaught	436	412	385	1,233
J. S. Meredith	-	1,231	30	1,261
R. M. Horton	-	791	1,451	2,242
Globe Indemnity Co.,	-	-	15,562	15,562
Royal Insurance Co.,	-	-	7,816	7,816
Toronto Harbor Comm.	-	-	21,164	21,164
Sundry Others	[illegible]	1,409	2,126	3,804
T o t a l -	$53,750	$102,620	$307,459	$463,829

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From our examination of the accounts of the Commission we find that for the three years ending October 31st, 1921, the Commission paid $390,578.65 in fire insurance premiums and collected for fire losses the sum of $494,142.00, or $103,563.35 more than the premiums paid. It would appear, therefore, that the results of the insurance policies placed by the Commission during that period were of a profitable nature.

Rebates Received

During the three years ending October 31st, 1921, the Commission received through Mr. Littlejohn from the agents through whom the insurance was placed a share of the commissions paid to the agents, such

share amounting to $39,177.42 as shown in the following list:

Agent	Percentage of Premiums Rebated to Commission	Total Rebates
Mortimer & Bampfield	3½-5-10	$29,133.80
Maguire & Connon	7-10	3,493.41
Dale & Company	10	2,442.50
A. E. Wilson & Company	5-12½-15-20	2,866.58
F. J. McMulkin	10	542.37
Armour, Bell, Boswell & Cronyn	-	154.20
Thompson, Dale & Power	10	396.89
E. J. Villiers	5	72.07
Wood, Mien & Patterson	-	51.60
Lyons & Harvey	5	24.00
T o t a l		$39,177.42

COPY

The placing of some of the insurance, especially the insurance on plant in course of construction, no doubt involved a considerable amount of work. For a large proportion, however, the work involved was of a trifling character, and the agent had little more to do than pass on to the company issuing the policy the particulars handed by Mr. Littlejohn to him. Such insurance was of a very profitable character to the agent.

It will be noted that the percentage of premiums paid by the agents to Mr. Littlejohn was not standard. When questioned by us on this subject, Mr. Littlejohn stated that the proportion paid to him depended upon many factors, and was fixed by him with the insurance agents.

As it was, after paying the expenses of his Department, Mr. Littlejohn was apparently able to turn over to the Commission, up to October 31st, 1921, $20,317.95.

If, instead of placing the insurance through agents, Mr. Littlejohn had placed it directly with the companies, the entire commission would have been paid to him and the Commission would have received several times over the amount that came into its hands. We were informed, however, during the course of our investigation, by several insurance agents, that Mr. Littlejohn would have had great difficulty in placing the insurance in this way, the insurance companies being generally opposed to procedure of the character followed by him.

COPY

Insurance Carried by the Commission.

As previously pointed out, the insurance placed by the Commission is carried by outside companies with the exception of the following items:

(a) Workmen's Compensation Insurance.
(b) Central Ontario Fire Insurance.
(c) Automobile Insurance.

With reference to Workmen's Compensation Insurance, there is an arrangement between the Workmen's Compensation Board and the Commission whereby the Board makes all disbursements on behalf of the Commission. A sum of $7,500,000 is held on deposit by the Board and a weekly statement of disbursements is furnished to the Commission. A cheque is then forwarded each week for an amount sufficient to bring the deposit to the amount of $7,500,00. In

addition to the sums paid weekly by the Commission to the Board, the Commission is assessed its yearly proportion of the Board's overhead charges, which during the fiscal year ending October 31st, 1922, amounted to approximately $7,000.00. This is the same procedure as that followed by municipalities and by railways.

The fire insurance in the Central Ontario System is carried directly by the Commission by providing a reserve on the basis of 12½% less than the tariff rate for insurance premiums on that class of risk. In this way the Commission has created a surplus of about $8,000.00 in the five years of operation.

The Commission also carried all its own automobile insurance by providing a reserve on the basis of 30% off the tariff rate. This creates for the Commission a yearly surplus of about $10,000.00.

COPY

Insurance Reserve

According to statements prepared for us by our Accountants, the accounts of the Commission as at October 31st, 1921, showed a surplus of over $18,000.00 in the insurance accounts, made up as follows:

Insurance Reserve		$590,809.96
Less: Outstanding Claims:		
Employees' Accident	$166,853.96	
Automobiles	500.00	
Peterborough Radial Railway ...	1,700.00	
Public Liability - Central Ontario System	150.00	
Miscellaneous	5,000.00	
	$174,003.96	
Provision to cover awarded Pensions as per valuation of Workmen's Compensation Board	392,735.82	
Sundry Accounts Payable	5,700.00	572,439.78
Surplus		$ 18,370.18

General Comment

As pointed out, with the expiry of Mr. Littlejohn's license in 1921, Mr. Littlejohn is apparently now prevented from receiving part of the commission from insurance agents. Therefore, since that date this source of income is lost to the Commission. Since our inquiries into this subject were made we have been given to understand that some arrangement has been arrived at whereby the insurance of the Commission is all being placed through one firm of recent origin. Our information on this subject is not authoritative nor have we any knowledge of the details of the arrangement, but it is suggested that the subject be inquired into by Your Honour and the Commission requested to state fully what is being done in this respect.

COPY

A review of insurance matters brings up the question as to whether any fundamental change from the practice now followed is desirable. In this connection there arises the question as to the possibility of the Commission carrying its own insurance on permanent works. Mr. Littlejohn at the hearing stated that the policy of the Commission was to carry its own insurance "as soon as they get a sufficient fund in there so as to be able to take chances on a big loss .... to be certain that they are not going to wreck themselves".

Mr. Clarkson, in giving evidence on this subject, said:

> "In a public undertaking of this kind I would say that unless there was a very ample margin that with such a large concentration of capital, it would be a very dangerous thing to do."
>
> "I would not recommend it until they had all the facts, and even then I would be very doubtful about it."

It is well known that some large corporations, railway companies and others carry all or a portion of their own insurance. In respect to insurance risks on works and structures of the Commission, we believe that before the Commission adopts any method of carrying its own insurance, the whole subject should be very carefully investigated, not only as regards the wisdom of self-insurance, but the methods by which such a system could be best administered.

In our opinion, full consideration also should be given to the question as to whether a general contingent reserve covering insurance on finished work as well as all those contingencies other than insurance now partially provided for by the various contingent funds of the Commission should not be established. It might also be worth while for the Commission and the Government to consider whether an arrangement between them might not be made whereby the properties of the Commission and the properties of the Government should all be insured by the Government and Commission jointly. If the Commission should not carry its insurance itself but should continue to place it through private companies, it would probably be advisable for it to place it through some insurance expert who might be able to secure reductions in rates which would not be secured by agents unskilled in insurance matters.

COPY

Section 43

RURAL LINES

By amendment made to The Power Commission Act in 1920, the Commission was authorized, subject to the approval of the Lieutenant-Governor in Council, to enter into a contract with the municipal corporation of a town-

ship, or the municipal corporations of two or more townships, and with the approval of the municipal corporation and in pursuance of such contract to lay out and define areas to be known as "rural power districts", in the township or townships for the distribution of electrical power or energy. It was further authorized to construct and operate all works necessary for transmitting, transforming and distributing electrical power or energy to the premises of persons within the rural power district.

The amendment further provided that township councils might pass by-laws for entering into such contracts and execute them without submitting the by-laws to the electors or complying with any of the other forms required in the case of by-laws passed under other sections of the Act.

COPY

The Commission was directed to annually fix, adjust and apportion the cost of all the works to be borne by each of the municipal corporations entering into such contract. The total amount for which each of the municipal corporations was to be liable was to include its proportion of a sum sufficient

1. To provide a sinking on a thirty-year basis for the repayment of the cost of the works.
2. To pay the Commission interest upon its expenditures.
3. To pay the cost of operating, maintaining, renewing, insuring of such works and other charges as set forth in Section 23 of the Act.

The power rates payable by customers in rural power districts are to be fixed by the Commission and to be sufficient to pay all the charges

to be borne by the corporation as mentioned above. All the provisions of The Power Commission Act as to payments to be made by the corporations which have entered into contracts with the Commission, are made applicable to contracts under the amending sections, and, in addition, provision is made that where a person receiving a supply of electrical power or energy in a rural power district is in default of payment of any account due in respect of such supply, the Commission may notify the corporation of the municipality in which the premises of the person in default are situate, stating the amount due, and such amount shall thereupon be entered upon the collector's roll of the municipality and "collected in the same manner as other taxes."

COPY

Prior to the amending Act of 1920, The Power Commission Act, Section 19a, authorized the council of a township, with the assent of the municipal electors, to pass a by-law for entering into a contract with the Commission for the supply of electrical power or energy for the use of the municipality and the inhabitants thereof. This Section 19a still forms part of the Act, and is available to township municipalities, so as to place them in the same position as other municipalities, in regard to supply of electrical power or energy to them. The amending Act enabled the Commission to act as distributor of power directly to individual consumers in rural power districts and gives it the extraordinary power of imposing as a tax, to be "collected in the same manner as other taxes", accounts for power supplied which are in arrears.

Attention is directed to the wording of the amendment as to sinking fund payments. These are not for the purpose of repaying advances of the Province for meeting the cost of the work, which advances are made in the same way as others for works for the benefit of municipal corporations, but to form in thirty years a sinking fund "for the payment of the amount expended by the Commission on capital account". The rate of interest to be allowed on these payments is not specified in the amending sections.

In addition to works for the transmission and distribution of power by the Commission to "rural power districts" the Commission, in many instances, has constructed lines for municipal corporations comprised in a "system" or "systems" in order that they may supply rural customers of the contracting municipalities. There are thus two classes of "rural lines" in one of which the Commission is the direct distributor of power to consumers and in the other the contracting municipal corporations distribute power to rural consumers. In the latter the "rural lines" form part of the works of "systems", the cost of which is borne by the municipality in which they are situate. Attention is drawn to this fact in order to make clear our comments upon "The Rural Hydro-Electric Distribution Act, 1921".

COPY

The accounts of the Commission to October 31st, 1922, show that it expended upon rural lines to that date, exclusive of those of the so-called Essex System, $1,127,277.88, of which amount the expenditures upon rural lines of rural power districts were $302,671.73 and upon others

HYDRO-ELECTRIC INQUIRY COMMISSION
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$324,606.15. Against these expenditures upon "rural lines", the Commission charged the Province to October 31st, 1922, the sum of $202,953.07, as an amount receivable under The Rural Hydro-Electric Distribution Act in respect of bonuses to primary rural lines completed and in operation on October 31st, 1922.

At the session of the Legislature of 1921, "An Act to make more Equal Provision for the Cost of Hydro-Electric Power in Ontario" was passed. The short title of the Act is "The Rural Hydro-Electric Distribution Act, 1921." The Act came into force on the 1st day of June, 1921, and provided for the establishment of a fund to be known as "The Hydro-Electric Power Extension Fund" and directed the Treasurer of Ontario open an account to be known as "The Hydro-Electric Power Extension Fund Account". To the credit of this fund was to be placed annually at such time as the Lieutenant-Governor in Council might direct, a sum equivalent to the total amount falling due to the Province from the rental of water powers since the 1st day of January, 1918, but not including rentals falling due under agreements entered into by the Commissioners of the Queen Victoria Niagara Falls Park for the development of power within the Park; a sum equivalent to the surplus revenue from power rentals payable to the Park Commissioners after deducting such sums as are required to meet certain charges and payments referred to in The Queen Victoria Niagara Falls Park Act, and such additional sums as might be voted by the Legislature.

COPY

Where power is supplied to a rural power district under the provisions of The Power Commission Act, to which we have referred, there may be paid to the municipality or Commission distributing the power, upon the recommendation of the Commission, and the order of the Lieutenant-Governor in Council, a sum not exceeding fifty per cent. of the capital cost of constructing and erecting the primary transmission lines and cables required for the delivery of power. In 1922, an amendment of the Act permitted payments, which had been authorized by the Act of 1921, to be made in respect of works constructed before or since 1st June, 1921. The Act of 1922, as amended by a further Act in 1923, authorized payment, on the recommendation of the Commission and the order of the Lieutenant-Governor in Council, to the corporation of a township or municipality being a distributor of power, of a sum not exceeding fifty per cent. of the cost of constructing and erecting in an adjoining township or rural power district primary transmission lines and cables.

COPY

The effect of the law as it now stands appears to be that fifty per cent. of the expenditures made by the Commission upon rural lines is met by advances from the Province in ordinary course and repaid by sinking fund, the remaining fifty per cent. is met by advances from the Province chargeable to the fund established by The Rural Hydro-Electric Distribution Act, and for which the Province will never be repaid. The result to municipalities in rural power districts and to urban municipalities supplying power within such rural power districts is that the payments on account of sinking

fund and interest in respect of cost are reduced to the extent of the amount contributed by the Province.

We understand that the amount paid to the Commission by the Province to October 31st, 1923, aggregating about $425,000, on account of rural line bonuses was paid out of the Consolidated Revenue Fund under authority of Special Warrant, The Hydro-Electric Power Extension Fund presumably having been established and the amount paid charged to it.

Section 44

WATER RENTALS

COPY

The great importance to the Province of The Rural Hydro-Electric Distribution Act will be recognized when the disposition made thereby of the rentals of water powers is considered. All rentals received or receivable by the Province since 1st January, 1918, from water powers other than those in the Niagara Falls Park, and the surplus, after payment of certain charges, of all rentals received or receivable from Niagara water power are directed to be annually placed to the credit of The Hydro-Electric Power Extension Fund.

The action of the Legislature in providing that the rentals received by the Province for water power shall go into this fund again emphasizes the importance of the question as to what rentals the Province should receive. The main source of revenue at the present time is, of course, that derived from the rentals of waters at Niagara Falls, which go to the Niagara Falls Park Commission to be applied for Park purposes, any surplus going into the fund for aiding in the construction of rural lines.

Under the provisions of an agreement made between The Ontario Power Company and the Queen Victoria Niagara Falls Park Commission, The Ontario Power Company agreed to pay the Park Commission annual water rentals as follows:

(a) A fixed sum of $30,000 per annum.

(b) For power generated and sold between 10,000 and 20,000 h.p., $1.00 per h.p.,

(c) For power generated and sold between 20,000 and 30,000 h.p., 75¢ per h.p.,

(d) For all power generated in excess of 30,000 h.p., 50¢ per h.p.

The estimate of the cost of power for the combined Niagara plants of the Commission, submitted to us by the Commission, shows the following amounts payable in respect of water rentals:

COPY

Plant	Horse-power to be developed	Amount of Water Rental	Rate of Water Rentals per Horse-power
The Ontario Power Company	150,000	$102,500	$0.683
Electrical Development Company	100,000	67,500	0.675
Queenston-Chippawa	450,000	135,000	0.30
	700,000	$305,000	

or an average for all plants of about 43¢.

No agreement has yet been made between the Power Commission and the Park Commission relative to rentals for the water used and to be used at the Queenston-Chippawa plant. By reference to the Park Commissioners' report

for the year 1922, page 22, it would seem that there is a difference of opinion as to the basis upon which the water rental for this plant should be fixed. Up to the present time, the Commission has paid nothing whatever for the water that it has used or is now using for this Development.

There is no doubt that, if the Government were to sell the right to use water at Niagara to a private concern at the highest price that it could obtain, or in other words, on the same basis that it sells timber or pulp limits, it would receive a much greater rental than it receives through the Park Commission from the Hydro-Electric Power Commission. If 700,000 horse-power were developed, a rental charge of $2.00 per horse-power would add to the Provincial revenues $1,400,000 per annum, less such amount as might be allowed to the Park Commission.

COPY

Some of the witnesses who have testified before us have taken strong ground against the rental of the waters of Niagara at present prices and have contended that the rental of it at these prices is unjust to the Province at large. They take the ground that as those who live in the neighborhood of timber or pulp wood limits receive no greater share of the product or of the price received for it than those who live elsewhere in the Province, those who live near the Falls of Niagara, which are of far greater value than any timber or pulp wood limit, should receive no special consideration on that account, but should pay full value for what they receive and that what is received should go to the Province just as the proceeds from the sale of a limit or its products go to the Province.

The subject is not a new one. It was debated in the Legislature before the Commission was established. Among the speakers was Sir Adam Beck, who took strong ground in support of the contention that the waters of Niagara should be dealt with on the same principle as other Provincial assets are dealt with. He said:

> "The Government has the same right over the Provincial water powers to which it holds title that it has over the timber, mineral and Crown lands of the Province.... and if the granting of timber and mineral rights at unduly low prices cannot be justified, the granting of water power rights at unduly low prices is still harder to justify. ...the waters of the Niagara River will forever flow over Niagara Falls. There is in these water powers ..... a source of perpetual Provincial revenue."

COPY

If the policy then advocated by Sir Adam Beck were carried into effect, there is no doubt that the revenues of the Province from it, applicable to the extension of rural lines or for the general purposes of the Province, would be vastly increased. This is an important subject, and we have thought it well to bring the outstanding facts to Your Honour's attention. We express no opinion as to the course which should be followed. That is a matter for consideration by the Government and the Legislature.

We have dealt only with the matter of water rentals in respect of the Niagara power plants, but if the Government decides as a matter of policy to adopt a definite rental basis for water used by the Commission at Niagara, it might be advisable that the arrangement be made to include the fixing of a standard rate for all water powers used by the Commission in the

Province. At the time we submitted our interim report on the Thunder Bay System, a study of the economics of the system was made, and in it a charge of 50¢ per horse-power for water used from the Nipigon River was assumed. Our reason for assuming this amount was to a large extent actuated by the unfortunate financial condition of the Nipigon plant and we felt that by fixing only a nominal rental for the water, the operating costs would be proportionately reduced. We see no reason, however, why this rental should not be increased as the operating condition of the plant improves until such time as a reasonable price per horse-power is contributed to the revenues of the Province by the power consumers in this district.

COPY

PART XI - ORGANIZATION OF THE COMMISSION

Section 45

G E N E R A L

Our Accountants, Messrs. Price, Waterhouse & Co., in a report to us entitled "General Accounting System", deal in some detail with the organization which the Commission has created to conduct the administration of its affairs. In the same report, the general scheme of accounting methods as adopted by the Commission is also discussed. Our Accountants have not touched upon the engineering organization of the Commission as such, nor have we had any special report prepared on this subject. Our Consulting Engineer has, however, dealt in full detail with the engineering organization which was formed to conduct and direct constructional operations of the Queenston-Chippawa Power Development. This subject we have referred to at some length in our separate report on that project.

COPY

Section 6 (1) of The Power Commission Act provides that:

> "The Commission may appoint a Chief Engineer, an Accountant and a Secretary, and such other engineers, accountants, officers, servants and workmen as may be deemed requisite."

Section 6a of the same Act provides among other things that:

> "The Commission, with the approval of the Lieutenant-Governor in Council may appoint an officer to be known as the Comptroller of the Commission who shall hold office during the pleasure of the Lieutenant-Governor in Council and shall countersign every cheque issued by the Commission, but before countersigning shall satisfy himself that the issue of the cheque is authorized ..... may give such directions as he may deem proper, and as the Commission may approve, as to the books of account kept by the Commission..."

As pointed out elsewhere in this report, no officer carrying the title of Comptroller has been appointed, but the duties of such office, as generally outlined by the Act are carried out by the Accountant, who, however, does not countersign cheques, this duty having been assigned to the Secretary.

By a resolution adopted by the Commission at its meeting of July 3rd, 1918, a plan was adopted by the Commission setting forth sub-departments coming under the charge of officers reporting directly to the Commission. These departments were four in number and we repeat them here so that the scope of administration coming under each may be understood:

The Chief Engineer
- (a) Engineering
- (b) Estimating
- (c) Operating
- (d) Farming
- (e) Garage and production
- (f) Sales
- (g) Purchasing and construction
- (h) Accident prevention
- (i) Surveys
- (j) Railways
- (k) Publishing and statistics.

The Secretary
- (a) Legal
- (b) Right-of-Way
- (c) Preparation of Annual Report
- (d) Correspondence of the Commission
- (e) Secretary to the Commissioners
- (f) Insurance
- (g) Real Estate
- (h) Rentals

The Accountant
- (a) Accounting in all its branches
- (b) Stores
- (c) Filing
- (d) Municipal Accounting.

The Chief Electrical Inspector

(a) "The carrying out of the rules and regulations of the Commission with regard to inside wiring, in such manner as may be prescribed by the Commission."

At a previous meeting held on June 5th, 1918, the Commission appointed a Treasurer whose duties were outlined as covering the following:

Preparation of monthly budget.
Preparation of annual report, re amounts to be paid to Government on sinking fund account.
Sign all cheques "after the vouchers have been passed by officers of the departments competent to deal with each class of payment."
Conduct general banking business of the Commission.
Attend to payment of bond interest.
Act as Treasurer of The Ontario Power Company, Limited.
"Perform such other services as the Board may from time to time see fit to direct."

COPY

The Minutes of the meeting of July 3rd, 1918, also set forth, that:

"....It is the wish of the Commission that the fullest co-operation shall be maintained between the various departments, in furtherance of which it is ordered that meetings be held at stated intervals, when found necessary, at which the departmental heads are expected to be present."

We understand that, in accordance with this direction of the Commission, meetings are held as occasion may require for the discussion of various matters which arise from time to time.

As will be gathered from a study of organization charts prepared by our Accountants and included in their report above referred to, the

respective heads of various sub-departments each of which, generally speaking, constitutes an independent section, report directly to the respective heads of the Department. These sections are independent to the extent that they are distinct units with certain specified duties to perform, but in the event of the staff of one section being temporarily reduced or over-taxed, members of the other sections are assigned to relieve the situation.

The Commission

The Hydro-Electric Power Commission of Ontario assumes the full responsibility for all matters of administration and in doing so, issues instructions to the four principal officers just referred to, namely, the Chief Engineer, the Secretary, the Treasurer and the Chief Accountant. The legal status of the Commission and its general functions and responsibilities are dealt with in different sections of this report and particularly in our report entitled "History and General Relations".

COPY

Electrical Inspection

The work of the Department controlled by the Chief Electrical Inspector covers the whole Province and is in many ways different from other duties of the Commission in that it includes the inspection of all matters pertaining to electrical installation and the manufacture of appliances, whether the work is done by those in the employ of the Commission or by private companies or individuals. This branch of the Commission has been in operation since 1912, when the Commission was authorized by an amendment

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to The Power Commission Act to make the necessary regulations. The Commission has now the right to supervise all electrical work in Ontario whether installed by the Commission itself, the municipal Commissions or private companies or individuals. Though fees are charged for inspections, the revenue since the inception of the Department until October 31st, 1922, has been less than the expenditures by the Commission by $258,585.53, which has been charged to the Province. Several complaints have been made to us by manufacturers of appliances, electrical contractors and others that the Commission should not administer the work of electrical inspection. It is claimed that it gives the Commission an unfair advantage over those who are operating privately and it is contended that, in some cases, discrimination has occurred favouring the work done by the Commission's employees or those working for the municipal Commissions.

COPY

On the whole, however, we believe that the work of this Department has been carried on in a businesslike and efficient manner, and, while the principle of the Commission doing this work may be open to some question, we know of no better method by which this important work can be accomplished. While, as we have stated, some have complained, others, who are competitors, have expressed their approval of the present system.

Section 46

PRESENT CONDITIONS

Personnel of the Commission

We have pointed out when giving the history of the Commission that the Honourable Adam Beck, the Honourable John S. Hendrie and Mr. Cecil B. Smith, C.E., were the Commissioners originally appointed in June, 1906. Mr. W. K. McNaught, M.P.P., succeeded Mr. Smith in 1907. The Honourable (now Sir) Adam Beck has held the appointment as Chairman of the Commission continuously since 1906. The tenure of office of other Commissioners is set forth in our report on "History and General Relations". Those who have served as Commissioners are the Honourable I. B. Lucas, Mr. Fred R. Miller and the Honourable Colonel P. Carmichael and Mr. J. G. Ramsden.

COPY

The present administration took office in July of last year. The resignation of Colonel Carmichael had already been accepted; Mr. Ramsden was removed by the present Government and Hon. J. R. Cooke, M.P.P., was appointed to fill one of the vacancies. No appointment of a third Commissioner has yet been made. The Power Commission Act provides that one of the members of the Commission must be, and two may be, members of the Executive Council. The following table shows those who have held the office of Commissioner, their term of office and whether they were members of the Legislative Assembly or members of the Executive Council:

Table Showing Period During Which Members of the Hydro-Electric Power Commission were (a) Members of the Legislative Assembly, and (b) Members of the Government.

Name of Commissioner	Member of H. E. P.C.		Member of Legislative Assembly		Member of Executive Council.	
	From	To	From	To	From	To
Sir Adam Beck	7/6/06	Date	1906 1923	1919 -	1906 1923	1914 -
Sir John Hendrie	7/6/06	9/10/14	1902	1914		1914
Cecil B. Smith	7/6/06	28/2/07				
W. K. McNaught	28/2/07	28/2/19	1906	1915		
Hon. I.B.Lucas	9/10/14	1/8/21	1898	1919	1909	1919
Fred K. Miller	28/7/21	31/8/23				
J. A. Ramsden	12/1/23	24/7/23				
Hon.Col.D.Carmichael	20/11/19	28/6/23	1919	1923	1919	1923
Hon. J. R. Cooke	24/7/23		1911		1923	

COPY

Remuneration

Prior to November 1st, 1911, no remuneration was paid to the Chairman or other members of the Commission. In 1912, The Power Commission Act was amended, the Legislative Assembly Act declared not to be applicable and provision made for payment to the Chairman annually of a sum not exceeding $6,000. A further amendment in 1915, retroactive to November 1st, 1914, provided that the Chairman should be paid an annual salary of $6,000 out of the Consolidated Revenue Fund of Ontario and that the Chairman and each of the

other members of the Commission may be paid such annual sum for their services as members of the Commission as may be determined by the Lieutenant-Governor in Council, out of moneys not exceeding $15,000 per annum to be provided as set out in Clause (c) of Section 23 of The Power Commission Act, these moneys to be paid by additions to the cost of power payable by municipal corporations. The Lieutenant-Governor in Council determined that out of the moneys so provided, $6,000 should be paid to the Chairman and $4,000 to each of the other members of the Commission annually.

The names of the Commissioners who received remuneration, the amounts paid to each and the source of funds therefor, from the commencement of the Commission to October 31st, 1922, are as follows:

COPY

Commissioners	Remuneration and Source of Funds			
	Commission	Ontario Power Company	Province	Together
Hon. Adam Beck (Nov.1,1911 to Oct.31,1922)	$50,000.00	$31,500.00	$66,000.00	$147,500.00
W. K. McNaught (Nov. 1914, to Feb., 1919)	17,333.00	-	-	17,333.00
Hon. I. B. Lucas (Nov., 1914, to July, 1921)	27,000.00	3,083.34	-	30,083.34
Hon. D. Carmichael (Nov., 1919, to Oct.31,1922)	12,000.00	5,583.34	-	17,583.34
Fred R. Miller (Aug., 1921, to Aug., 1922)	4,333.33	2,166.66	-	6,499.99
Total	$110,666.33	$42,333.34	$66,000.00	$218,999.67

Shortly after the Commission purchased The Ontario Power Company, the members of the Commission and certain of its executive staff became Directors of the Company. As Directors of the Company they voted themselves additional salaries at two Directors' meetings held in June, 1918, and June, 1920. The following are the Minutes appearing in connection therewith:

Directors' Meeting held June 26th, 1918

> Moved by Mr. Lucas, seconded by Colonel McNaught that the salary of the President be increased by the sum of Six Thousand Dollars per annum, such increase to date from the 1st day of August, 1917, the date on which the control of the Ontario Power Company of Niagara Falls passed into the hands of the Hydro-Electric Power Commission of Ontario.
>
> (Signed) A. Beck,
>
> President.

COPY

Directors' Meeting held June 29th, 1920.

> Upon motion duly made and seconded, the salary to be paid to the 1st and 2nd Vice-Presidents was fixed at $2,000 per annum each, the same to take effect from the 14th day of January, 1920, being the date upon which the annual general meeting was held.
>
> (Signed) A. Beck,
>
> President.

The offices referred to above, in respect of which remuneration was given, were held as follows:

First Vice-President:
Hon. I. B. Lucas (January 1920 to August 1st, 1921)
Hon. D. Carmichael (From August 1st, 1921 -)

Second Vice President:
Hon. D. Carmichael (To August 1st, 1921)
Fred B. Miller (From August 1st, 1921)

As at October 31st, 1921, the following were officers of The Ontario Power Company and the aggregate remuneration of each, for the fiscal year ending that date, was paid by the Commission as follows:

Officers	Remuneration and Source of Funds: Commission	Ontario Power Company	Province	Together
Sir Adam Beck President	$6,000.00	$6,000.00	$6,000.00	$18,000.00
Hon. D. Carmichael First Vice-President	4,000.00	2,000.00	-	6,000.00
Fred R. Miller (deceased) Second Vice-President	1,000.00	500.00	-	1,500.00(a)
W. W. Pope Director and Secretary	5,400.00	2,400.00	-	7,800.00
F. A. Gaby, Director and Chief Engineer	15,000.00	2,400.00	-	17,400.00
J. W. Gilmour Director and Treasurer	5,120.00	1,280.00	-	6,400.00
W. G. Pierdon Director and Accountant	7,400.00	1,000.00	-	8,400.00(b)

(a) - Three Months (b) - Two Years.

COPY

We are of opinion that the Commission and its staff do not receive remuneration in excess of that demanded by their duties. As a matter of fact, we believe that if the Chairman of the Commission were the president of a private corporation of similar size, he would receive greater salary than he now does. The same remark would also apply to the other two Commissioners and to the principal executive heads. The salaries paid to the general staff are, perhaps, a little higher than those paid elsewhere, but on the whole are quite in keeping with the nature of the duties required of them.

In considering the matter of remuneration, however, we have found it necessary to comment adversely in our report on The Ontario Power Company on the manner in which the members of the Commission increased their own salaries, and the salaries of the principal executives of the Commission, by virtue of the position held as Directors. We have cited the Minutes of the Directors' meetings whereat these increases were decided upon and a review of the whole circumstances confirms our belief that the action of the Commission in this respect was improper and in clear violation of the spirit, if not the letter, of The Power Commission Act. The services rendered by members of the Commission as officers of The Ontario Power Company are largely nominal. Personally they have no interest in the stock of the company, and they operate the company and its properties solely as members of the Hydro-Electric Power Commission of Ontario. The work of management is no greater than if the property of the company had been bought out and out and the company had gone out of existence. That the work done by the Commission in respect of the company is covered by the salaries and remuneration fixed by the Legislature, there is not the slightest doubt. It was, we believe, never contemplated by the Legislature that members of the Commission should as Directors of a skeleton company have a right to increase as they pleased the salaries which the Legislature had fixed.

COPY

As before pointed out, we are of opinion that the remuneration received by the Commission and its principal executives is not too high, but when increases were thought to be proper, the matter should have been brought before the Government and, if approved, it should then have submitted a proposal to the Legislature.

An instance in which the action of the Commission in reference to salaries appears to be questionable is that referred to in their Minutes under June 29th, 1922, wherein it states:

> "It was decided that W. W. Pope shall be entitled to receive as part of his remuneration, in additional (sic) to his salary allowance, all lawful Solicitor costs which are taxable by the Commission in any action or proceeding conducted by him as Solicitor for the Commission, and this shall apply to all work since January 1st, 1922."

It is, we understand, not unusual for the solicitor of railway and other companies to be formally permitted to receive for his own use costs taxed against an opposing litigant, as otherwise costs would not be taxable. No objection could be raised to this procedure being adopted by the Commission if it were approved by the Government and if the amounts so received were taken into consideration in fixing the annual salary to be approved by the Lieutenant-Governor in Council.

COPY

Under date of October 12th, 1923, the following Minute appears:

> "The Commission directed that the Secretary and Solicitor, W. W. Pope, be paid the sum of $3,000., in addition to his salary, for extra services for nineteen months, from December 1st, 1920, in connection with the purchase of the interests of the Toronto Power Company, known as 'The Clean Up Deal'."

Increases or remuneration such as this, appear to us to be clearly in violation of the Act. The Power Commission Act provides that "the salaries or other remuneration of the Chief Engineer, Accountant and Secretary ..... shall be fixed by the Commission, subject to the ratification of the Lieutenant-Governor in Council." As frequently commented upon by Mr. Clarkson and mentioned in our prior reports, the ratification of the

Lieutenant-Governor in Council of the amount fixed as salaries of these officers has not been obtained.

While in personal touch with the Commission we were impressed with the diligence, resourcefulness and loyalty of the staff to the Commission, and we have no doubt that many of them are giving much more time to the work of the Commission than might be reasonably demanded of them. On the other hand, we find that the members of the staff enjoy many privileges and advantages which, under other circumstances, they might not possess. Considerable attention is paid to their social welfare, facilities for recreation are provided, a pension scheme has been inaugurated and many other things have been done for their contentment and well-being.

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If the salaries paid to any members of the staff are inadequate they should be increased but if increases be made let them be made in a proper manner and in accordance with the spirit and letter of the law.

We understood from the Commission and the heads of its Departments that the members of its staff were "full time" men but we have since been given to understand that certain of the staff with or without the official approval of the Commission carry on, at times, private work for which remuneration is received over and above that paid to them by the Commission. This work is apparently done in the Commission's time, no deduction as far as we can learn having been made on account of it. Practices of this kind should not be allowed, for the work of the Commission requires their whole time and energies. It is on this basis that they are employed and receive their remuneration.

Section 47

SUGGESTED CHANGES IN ORGANIZATION

The Provincial Government

Much closer co-operation should be devised and maintained between the Provincial Government and the Commission through specific channels in regard to all matters of policy, expenditure, new financing, legislation and so forth.

Our inquiries have impressed upon us the fact that there has been a great lack of co-operation between the Government and the Commission. We have already in this, and in other reports submitted, showed the attitude which the Commission has assumed in its general dealings with the Government. At this place, we desire to point out that the Government has not had the knowledge it should have had of what the Commission has been doing or trying to do, and it has had no means by which it could intelligently inform itself of the detailed operations of the Commission. We believe it to be of prime importance that the Government of the day be kept constantly and fully in touch with matters relating to the operations of the Commission. In our report on "History and General Relations", we have dealt in some detail with the suggestion made by Mr. Clarkson of the appointment of an officer, whose duty it would be to keep the Government in close touch with the Commission's operations. Further reference has been made to this matter in another section of this report, and to the comments on this subject we respectfully refer Your Honour.

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The Auditor

The Power Commission Act contains the following provisions for the appointment and remuneration of the Auditor of the Commission's accounts:

> "The accounts of the Commission shall, upon the direction of the Lieutenant-Governor in Council, be from time to time, and at least once every year, audited either by the Auditor for Ontario, or by other auditor or auditors named in the direction of the Lieutenant-Governor in Council."
>
> "The salary of the Comptroller and the expenses of such audits shall be fixed by the Commission, with the approval of the Lieutenant-Governor in Council and shall be payable by the Commission as part of the costs of administration of the Commission."

It will be noted from the above that, while the Auditor is appointed by the Lieutenant-Governor in Council, the Auditor's remuneration is fixed by the Commission subject to the approval of the Lieutenant-Governor in Council. Under the date of November 22nd, 1922, the Commission increased the remuneration paid the Auditor as stated in the following:

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> "A communication having been received from Messrs. E. R. C. Clarkson & Sons asking for an increase in audit fees for work done, was dealt with by the Board, and after careful consideration it was decided that for the year 1920, the fee should be increased from $15,000 to $20,000, and that the fee for 1921 and 1922 be placed at $25,000.00."

The appointment of the Auditor is in the hands of the Government, but his remuneration is fixed by the Commission, subject to confirmation by Order-in-Council. Mr. Clarkson's high personal and professional standing is unquestioned and the members of the Commission hold him in high regard, but we believe it to be wrong to place the fixing of his remuneration (subject to

the approval mentioned) in the hands of the body whose accounts he is required to audit. We believe that both the appointment and remuneration of the Auditor of the Commission's accounts should be left entirely in the hands of the Government.

Advisors of the Government

As pointed out in our report on the Queenston-Chippawa Power Development, the Commission from time to time employed consulting engineers to advise with it on the engineering details of the design. To obtain this advice they chose men of high standing and are to be commended for so doing.

It was not until the spring of 1920, some three years after construction work had been commenced, that the Commission decided to call in a consulting engineer to advise on the matter of costs. The report of this consulting engineer did not suit the Commission and was discredited by it, and the Government made no use of it. The Commission then called in the joint services of a consulting engineer and a contractor. Their report showed that the work would cost almost twice as much as the official estimates in use by the Commission up to the end of 1919.

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In our report we refer in a general way to the likelihood that had the Commission or the Government called in consultants at an earlier date, the Commission and the Government would have had information that the work would have cost much more than the estimates provided. We believe that, in the future, on developments of great magnitude, the Government should call in a consultant or consultants specially qualified to advise on the subject under consideration.

not after the work has been partially completed, but before it has been commenced. It cannot afford to rely solely upon the estimates of men who are both advocates and engineers and no engineer should be asked to put himself in such a position. The Government should be advised in connection with all important engineering matters involving new projects, all expenditures of large magnitude and special construction procedure. The Government, in rendering its decision with such a report before it, would be justified in the belief that it had taken reasonable precautions to safeguard the interests of the Province.

Hydro-Electric Power Commission of Ontario

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Suggestions have been put forth and recommendations made that the number of members of the Commission might with advantage be increased. We cannot do better than repeat what we have said re this subject in our report entitled "History and General Relations".

"The concensus of opinion of those who have testified before us has been that efficiency would not be increased by adding to the number of the members of the Commission, but that the work could be more effectively performed by the present than by a larger number. When the Commission was first organized the work required from the members of the Commission was comparatively small as compared with the work required from them today. At present there is enough work to keep three men busy all the time, and in our opinion the Government and Legislature might well consider whether or not hereafter the Commission should be composed of highly qualified men giving their whole time to the work; or, in other words, "full-time" men. To secure the best men, adequate salaries will have to be paid."

The Power Commission Act at the present time provides that one member of the Commission must be, and two members of the Commission may be,

members of the Government of the day. If this provision be continued it would practically mean that one-third of the Commission would go out with the Government and two-thirds of the Commission might go out with the Government. A provision of this kind of course limits the choice of the Government. It might be possible for a Government to have within it two men fully qualified to fill positions on the Commission; but, without disparagement to any Government it may be said that in the past the possession of qualifications to manage a great public undertaking has not been a leading factor in determining the choice of members of the Legislature, from whom members of the Government are taken. One objection to members of the Government being members of the Commission which has been pressed upon us, has been that the Government of the day is, in effect, the executive committee of the party to which its members belong. A man who is a member of the party executive in one building can hardly be expected to become non-partisan when he takes his seat on a Commission in another building. These are questions, at any rate, which may well receive consideration.

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As will have been noted, the Chairman of the Commission receives a part of his salary from the Province. This provision in The Power Commission Act in the early days of the movement may have been a desirable one, but under conditions as they exist at present we see no reason why the Province should be called upon to bear this expense, and, in our opinion, the annual amount now paid by the Province should become a charge on the operations of the Commission itself.

Another matter bearing upon the appointments to the Commission is that of the succession to the chairmanship. It can be said, we think, without the slightest reflection upon any of those who have been members of the Commission, that for years past there has been no one upon it who, in the event of the resignation or death of Sir Adam Beck, would have been qualified by training and experience to take the chairmanship.

In our report on "History and General Relations", we state that it has been made clear to us that the municipalities desire a closer contact with the Commission, and we set forth the suggestions that have been made. To our comments in this report we now refer you. In our opinion, however, whatever your Government may decide to do, much, and perhaps all, that can be accomplished in the direction of closer contact may be attained if the Commission will do all in its power to facilitate the representatives of the municipalities getting into close touch with its members. In our opinion, some, or all, of the members of the Commission should periodically visit the different places served by the Commission, and take an active part in hearing the complaints raised from time to time. If such grievances cannot be removed, they should explain in full the reasons why they cannot be. We have, in our report, submitted for consideration by your Government a suggestion made to us that an Advisory Board composed of representatives of the Hydro municipalities be established.

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The internal organization of the Commission is a matter to which we have given but little consideration. While, no doubt, some changes are desirable, we are not prepared to submit any recommendations, except as to the desirability, to which we have already referred, of creating a construction department should the Commission again undertake work of large magnitude. Should such a work be undertaken by the Commission, a manager of construction should be appointed. He would have a separate organisation under his control; some of the members might well be drawn from the present organisation of the Commission, but the chief executives would be chosen from men of high standing and wide experience in construction work. The manager of construction would naturally report directly to the Commission on all matters pertaining to his duties.

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Section 48

REVISION AND CONSOLIDATION OF STATUTES UNDER WHICH COMMISSION OPERATES.

During the course of our investigation of undertakings of the Commission it became apparent that, in the interpretation of various sections of the statutes relating to its works and undertakings, there have been differences of opinion. Conflicts and confusion appear to have arisen as to the rights and liabilities of the several parties interested in the acquisition, construction, operation and administration of the undertakings of the Commission. We are advised that in a large measure this has been occasioned by amendments to certain provisions of the statutes, without due regard to the

effect of these changes upon other provisions or to the fact that inconsistencies in these statutes have thereby been created. We have been further advised that the radical changes in the scope and policy of Hydro-Electric Power legislation, effected by the enactment of The Ontario Niagara Development Acts of 1916 and 1917, and by amendments to The Power Commission Act in 1918, have necessitated further amendments (not made) to the statutes relating to the powers and duties of the Commission in respect of power undertakings within its jurisdiction and control, in order that those powers and duties may be clearly and definitely determined.

We are also advised that there is an apparent necessity for a complete revision, and probably consolidation, of the Power Commission Act, the Niagara Development Acts and to the statutes affecting the powers and duties of the Commission in respect of works and undertakings acquired, constructed and operated by the Commission for the generation, transmission and distribution of electrical power or energy to municipalities and others. Such revision and consolidation would, in effect, be a Charter under which the Commission would administer power works and undertakings committed to its charge in a clearly defined manner, for the benefit of those interested therein and entitled thereto.

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Pending such revision and consolidation, which would require most careful preparation and consideration, amendments to the statutes to remove doubts and prevent conflict in regard to the powers and duties of the Commission and to define definitely the respective rights and liabilities of

the Province, the Commission and the municipal corporations which have entered, or may enter, into agreements with the Commission for a supply of electrical power or energy, may be desirable.

In the list of reports submitted to Your Honour by us, which list is given at the beginning of this report, will be found one entitled, "Legislation Affecting Power Undertakings of the Hydro-Electric Power Commission of Ontario". This report is not one of our reports but was prepared for us by our Legal Advisers and we have submitted it to your Government with covering letter dated January 23rd, 1924, as it appeared to us that it might be of value to your Government.

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Section 42

METHODS OF PROMOTION AND PUBLICITY

As pointed out in our report on "History and General Relations" the Commission has always maintained a close relationship with the Association of municipalities that was formed in the early days, and which Association now bears the name of The Ontario Municipal Electric Association. The Commission has frequently availed itself of the help of the Association or its officials in promoting the objects of the Commission. It has made grants of money to the Association, although the Auditor, Mr. C. T. Clarkson, has frequently questioned its authority to do so. The Secretary of the Association has been on the Commission's payroll and has appeared on public platform on its behalf.

No one will question the right of the Commission to advertise the advantages of Hydro-Electric Power and within reasonable limits to solicit business and endeavour in other ways to promote progress. That it should carry on a legitimate and well-systematized scheme of business promotion is just and proper, but as pointed out by us in our report on the St. Lawrence System, the Commission enters upon highly debatable ground when it enters a municipality to take part in an election being held to decide from what source the municipality will secure its power. This was done in the case of Cornwall. In this case the Commission took an active part in a local campaign without being requested by the municipality to do so, and the costs of the campaigning were charged against the Province. The Commission should bear in mind the fact that it is a public utility supported by the whole Province and that it has a duty to non-Hydro Municipalities as well as to those with which it has contracts.

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In this and other reports we have pointed out that, unfortunately, the Chairman from time to time makes statements which misinform and tend to mislead the public.

Statements have been spread abroad to the effect that municipal corporations will acquire complete ownership of the undertakings of the Commission in thirty years and in the meantime are the real owners subject only to the payment of certain indebtedness to the Province. As previously stated in this report, as recently as December 12th, 1923, a newspaper report quotes Sir Adam Beck as saying:

> "Under our present system we have provided for the retirement of the debt on capital investment at the end of thirty years."

We have shown previously in this report under the subject of "Sinking Funds" how misleading this statement is. Having regard to the fact that about 70% of the total capital investment of the Commission in power undertakings, or over $112,000,000 is in the Niagara development plants and certain subsidiary transmission lines alone, and that of this investment less than 4% is being, or is to be, according to figures submitted to us by the Commission, provided for by a sinking fund on a thirty-year basis, it is clear that the statement just quoted has no foundation in fact.

In recent announcements, quoting official figures given by the Chairman of the Commission, it was stated that the operation of the Queenston-Chippawa Power Development plant showed a surplus for the first year's operation of $382,601.24. It was stated that the total revenue from the sale of power for the first year's operation was $4,547,320.32 and "the total current expenditure" as $4,164,719.08, from which figures the so-called surplus is derived. It was intimated that the "surplus" would be made applicable to depreciation or renewal or contingency account. As a matter of fact these items must be provided for, and, if they are provided for on an adequate basis, a larger sum will be required than is apparently available. Further, no provision has been made by the Commission in respect of sinking fund, the collection of which it has deferred. It is, of course, known that the Statutes provide that the developments of the Commission must be operated on a cost basis, and therefore there can be no "surplus" or "profit". Notwithstanding all of these things, a "surplus" of $382,601.24 is announced. When submitting

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the estimates for the Queenston-Chippawa Development to the Government, the Chairman announced that 500,000 horse-power could be produced at an annual cost of $6.00 per horse-power, which sum would include all interest, sinking fund, renewal charges and so forth. Instead of the cost of power from the Queenston-Chippawa Development being fixed on a cost basis, a temporary and arbitrary rate of $20.00 per horse-power has been fixed by the Commission, which does not seem low even after making due allowance for the increase in construction costs that occurred while the development was being built and since the original estimate was made. The Commission, when deciding on the rate to be charged, had just as much right to make the price $15.00 or $25.00 or $30.00 per horse-power as it had to make it $20.00 per horse-power. If it had selected a price per horse-power of $15.00, instead of $30.00, the surplus would have been much larger. Surely statements such as these are misleading.

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In our report on "Examination of Auditor's Reports, for period 1916-1921, inclusive," we called attention to a statement made by the Chairman before the Committee on Water Power of the House of Representatives, at Washington. In describing the operations to the Commission, he said:

> "I may say, our accounts are subject to audit by an independent firm of auditors, the firm of Clarkson and Company, of the City of Toronto, who stand very high in the estimation of the financial institutions of the city and the country. They audit our accounts - in fact, they pre-audit. There is a running audit, so that everything is checked up fully and thoroughly giving an assurance that our affairs are administered in a proper way not only to the Commissioners themselves, but also to the Treasurer of the Province and the various municipalities, who receive the annual statement."

The Chairman made a similar statement when referring to certain expenditures concerning which he was giving evidence before us.

Questioned by us on this subject, Mr. Clarkson said:

"We did not pre-audit .... We audited after the event .... We were not pre-auditors, neither have we any power or control to say to the Commission, you shall or you shall not do this so as to prevent the payment."

Mr. Clarkson further said that the first report on the Commission's accounts which he prepared, was:

"..... nothing but a series of criticisms of the Commission for overstepping authority in one direction or another."

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PART XII - SOURCES OF POWER

Section 50

PRINCIPAL CHARACTERISTICS OF GENERATING PLANTS

General

For detailed information in reference to the principal characteristics of the generating plants operated by the Commission, we would refer you to our Consulting Engineer's report entitled "Principal Characteristics of H.E.P.C. Plants", and also to the various reports prepared by him on the engineering economics of each of the systems.

The generating plants in operation by the Commission at October 31st, 1921, included eighteen in all, and their locations will be found on the map forming the frontispiece of Volume I of this report. As pointed out in this and other of our reports, the Commission does not generate all the power which it sells, but purchases a certain amount from private companies. The plants to which references are made herein are only those which are operated by the Commission. These plants are designated as follows: Nipissing, Nipigon, South Falls, High Falls, Carleton Place, Fenelon Falls, Auburn, Healey Falls, Campbellford, Ranney Falls, Frankford, Trenton, Ontario Power Company, Erindale, Queenston-Chippawa, Eugenia, Wasdell's and Big Chute. Since October 31st, 1921, the Commission has acquired under the terms of the "Clean-Up Deal", the Electrical Development Company at Niagara Falls.

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These plants may be grouped into systems in the following order:

Systems	Plants
Nipissing (Central Ontario System)	Nipissing
Thunder Bay	Nipigon
Muskoka	South Falls
Rideau	High Falls Carleton Place
Central Ontario (Nipissing Section) (Trent Section)	Fenelon Falls Auburn Healey Falls Campbellford Manney Falls Frankford Trenton
Niagara	Ontario Power Company Erindale Queenston-Chippawa Electrical Development Company
Northern (Eugenia, Wasdell's and Severn)	Eugenia Wasdell's Big Chute

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As Appendix "D" we include herewith nine double pages of tables, in which certain information is given, in order of the grouping of the generating plants into systems. For each of the eighteen plants, 44 items of information are given. The first items, being 1 to 12, inclusive, refer to the hydraulic characteristics; the next six items, being 13 to 18, inclusive,

have reference to the power characteristics and to the equipment of the generating plants; the next succeeding sixteen items, being 19 to 34, inclusive, refer to historical data and capital costs, while the last group of items, ten in number and marked items 34 to 44, inclusive, refer to operating costs and unit costs for the year ending October 31st, 1921, the four final items being deduced arithmetically from the earlier figures of facts. Having regard to the fact that this table is compiled only to October 31st, 1921, it will be necessary to refer to some of our separate reports for the later details in reference to certain plants; especially is this so regarding the principal characteristics of the Queenston-Chippawa Power Development, all of which are set forth in our report on that project.

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The whole of the foregoing information has been obtained from the records of the Commission, or is based thereon. The Carleton Place plant of the Rideau System did not operate during 1921. The Ranney Falls plant of the Central Ontario System, and the Queenston-Chippawa plant of the Niagara System were still incomplete on October 31st, 1921. The Erindale plant, also of the Niagara System, operated only nine hours per day during 1921, so that the figures given in items 41 to 44, inclusive, are not comparable with those of the other plants.

In the case of the Central Ontario System and of the Niagara System operating cost has not been separated on the records as between labour and material and is not readily ascertainable. It will also be noted that there is no information given in respect of The Electrical Development Company, a

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plant recently acquired by the Commission under the terms of the "Clean-Up Deal". The outstanding characteristics of these plants are, however, given in a general way in our report on the Queenston-Chippawa Power Development and in our report on the Niagara System.

The growth in the power load in Ontario has been dealt with earlier in this report, and we would refer you to page 216 which represents in graphic form the peak loads in electrical horse-power for the period 1911 to 1922. In observing this chart it is to be noted, however, that loads shown thereon include not only power developed by the Commission itself in its several plants, but also includes the power which it purchases from private companies.

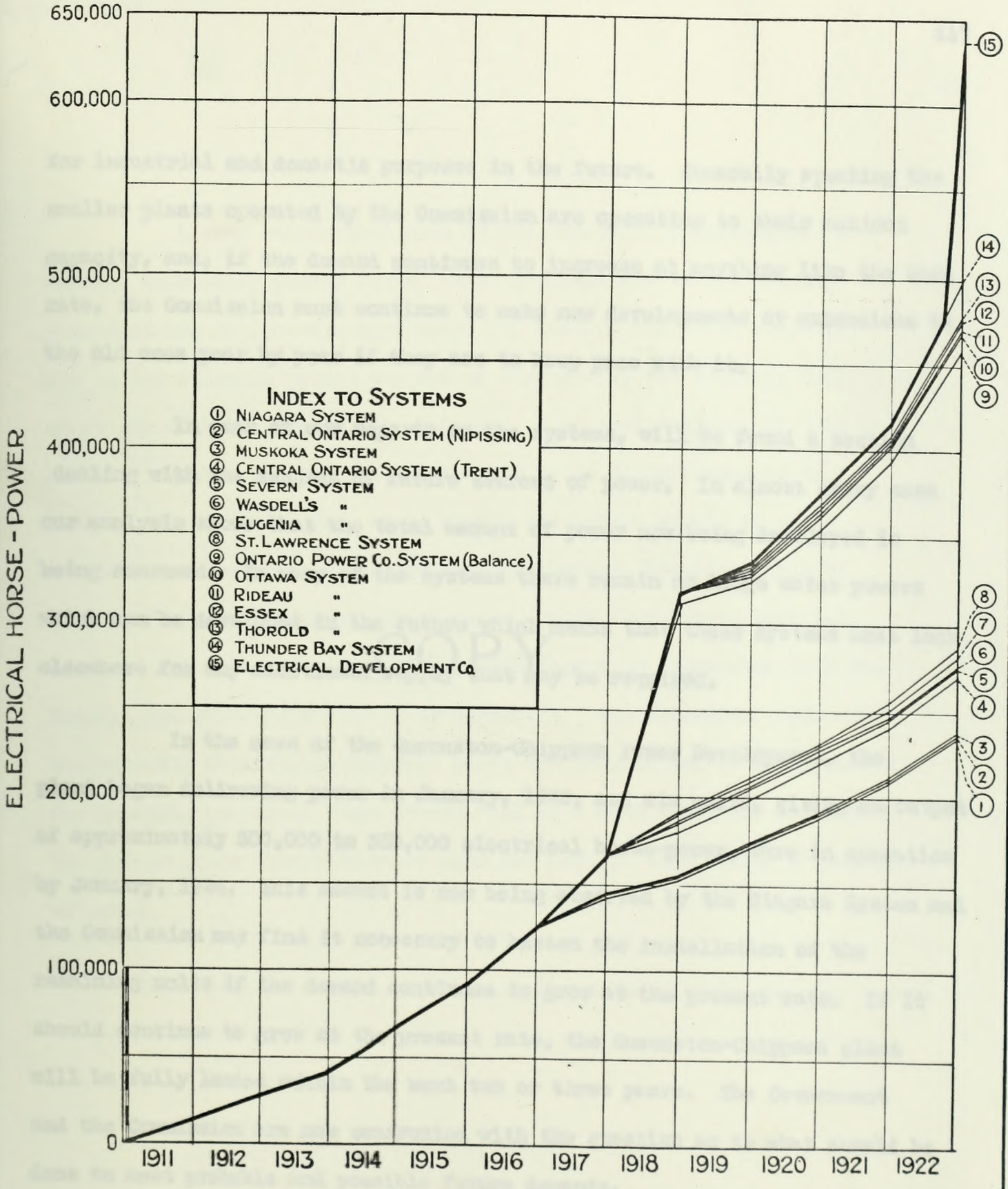
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The total hydraulic installation in the Province of Ontario compared with electrical horse-power sold by the Commission is also graphically illustrated on page 146 of this report. This matter is also referred to in another section.

Section 51

FUTURE POWER REQUIREMENTS

The enormous growth that has occurred in the consumption of power in the Province of Ontario, especially during the last four or five years immediately brings up the question as to what further developments will be required in order that there may be a sufficient amount of power available



HYDRO-ELECTRIC INQUIRY COMMISSION
W. D. GREGORY, CHAIRMAN

ECONOMICS OF H. E. P. C. DISTRIBUTION SYSTEMS

H. E. P. C. SYSTEMS

CURVES OF PEAK LOADS IN ELECTRICAL HORSE-POWER

Toronto, June 23rd, 1923. Made by G.E.G. Checked by L.A.H.

WALTER J. FRANCIS & COMPANY
CONSULTING ENGINEERS

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for industrial and domestic purposes in the future. Generally speaking the smaller plants operated by the Commission are operating to their maximum capacity, and, if the demand continues to increase at anything like the same rate, the Commission must continue to make new developments or extensions to the old ones year by year if they are to keep pace with it.

In each of our reports on the systems, will be found a section dealing with the subject of future sources of power. In almost every case our analysis shows that the total amount of power now being developed is being consumed. In many of the systems there remain no large water powers which can be developed in the future which means that these systems must look elsewhere for any additional supply that may be required.

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In the case of the Queenston-Chippawa Power Development, the plant began delivering power in January, 1922, and six units, giving an output of approximately 300,000 to 350,000 electrical horse-power, were in operation by January, 1924. This amount is now being absorbed by the Niagara System and the Commission may find it necessary to hasten the installation of the remaining units if the demand continues to grow at the present rate. If it should continue to grow at the present rate, the Queenston-Chippawa plant will be fully loaded within the next two or three years. The Government and the Commission are now confronted with the question as to what should be done to meet probable and possible future demands.

A very substantial part of the increase in power load in Ontario especially during recent years has been due to the greatly increased use of domestic appliances for heating and other purposes. Due to low domestic rates, the use of electricity for cooking, heating and other purposes has become very general. A typical instance of what has occurred in this respect was pointed out to us in reference to the Municipality of North Bay, where almost the entire supply of power available was being used for domestic appliances, leaving little or nothing for general industrial purposes. This illustrates what has occurred and will occur in still greater degree in connection with the Niagara and other future large developments. The phenomenal demands on the recently constructed Chippawa plant are largely due to requirements for domestic purposes. This demand will be a most important element in the future power situation in Ontario and may, in time, force a revision of rates.

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SOME OF THE CONCLUSIONS ARRIVED AT

General

It is impossible for us fully to summarize our conclusions in respect of all the subjects submitted to us for investigation, even within the scope of this report. There is much matter very pertinent to them that can be found only within the reports that we have already submitted to Your Honour and to which we refer you, but in closing we shall summarize or repeat a few of the main conclusions at which we have arrived.

The principle of public ownership of the water powers of the Province and their development by the people for the people, is, in our opinion, fundamentally sound and should be maintained at all hazards in its full integrity.

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The Engineering Department of the Commission is made up of men of high professional qualifications as engineers, and as such they are serving the Commission zealously and efficiently. The various plants of the Commission are exceptionally well operated by them. When inspecting these plants we have been much impressed with the outstanding character and ability of the engineers in charge.

The methods of accounting adopted by the Commission we believe to be adequate and proper both in respect to the manner in which the duties are apportioned and as regards the records kept. Certain improvements in the system now followed have been suggested by us.

Financially Sound

That the organization administered by the Commission is financially sound there is not the slightest doubt. The Commission has, to a large degree, a monopoly of something that everyone wants. Any organization that has such a monopoly should have no difficulty in paying its way, provided its method of administration is sound. To some of the practices of the Commission we take strong exception in our reports, and to these reports we refer Your Honour.

The things to which we have taken exception are nearly all matters of administration. But methods of administration can be reformed and wrong methods can be righted. We mention now, some of the things which, in our opinion, have been wrong.

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(a) There has been too great a tendency on the part of the Commission to defer the time for refunding its obligations. There appears to us no reason why the time for contributions to sinking fund to meet the cost of construction should invariably be deferred for five years beyond the time specified in The Power Commission Act, whatever the demand for power may be.

(b) The expressed intention of the Commission to extend the time for contributions to the sinking fund in respect of the Queenston-Chippawa undertaking to forty years with a five-year deferment period is, we believe, absolutely wrong, and, we are advised, contrary to existing law. We regard it as unlikely that the Legislature in passing The Ontario Niagara Development Acts intended to relieve the Niagara System from the provisions of The Power Commission Act relating to contributions to sinking fund.

(c) The failure to provide a sinking fund for nearly all of the bonded indebtedness in respect of the Niagara developments, which are operated by the Commission as private companies, in the same general manner and to the same extent as is done in respect of cash advances under The Power Commission Act, has been, in our opinion, unsound and unjustified.

(d) The principal estimates of cost of developments submitted by the Commission to the Government have in nearly all cases been far too low. So wide has been the difference between estimates and costs that the fact that the estimates should have been submitted as representing the probable cost of the works seems almost incredible.

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(e) In 1922, the Commission took a large portion of its renewal fund, which at that time was in some cases too small, and applied it in payment of outstanding balances due to it by municipalities and established new renewal rates for the future on a much lower basis. This depletion of the renewal reserves and the reduction in the rate by the Commission was, in our opinion, unjustifiable and unsound.

(f) We fully concur in the opinion expressed by our Consulting Engineer that the contingency funds of the Commission are, as a rule, too low.

(g) The unauthorized use of $1,100,000 of the funds of the Power Commission for radial railway purposes was wholly unjustifiable and the amount taken from these funds should be restored without delay.

We refer later in this report to other matters of administration which, in our opinion, are wrong.

The Chairman

There are two distinct sides to Sir Adam Beck, the Chairman of the Commission. That he rendered most notable service to Ontario in building up the present Hydro organization is undisputable. He most effectively defended it when, at a critical period in its history, it was attacked by unscrupulous interests that sought to destroy it. The attacks upon him by those and kindred interests have been his greatest asset. For the services rendered he is entitled to receive full and ungrudging credit. He is also entitled to much credit for creating the present able and efficient staff. As we have pointed out elsewhere, he has kept the organization free from those paralyzing influences of officialdom which have often done much to lessen the value of the public service. On the other hand, there is no question that in his dealing with the Government of the day he has frequently failed to disclose the operations of the Commission, he has paid little regard to Legislative authority and he has shown an absolute lack of frankness. He appears to have recognised no obligation to keep the Government informed in matters of cost and expenditure. When seeking authority to construct power developments he has time and again submitted estimates to the Government and the municipalities which he should have known - and we have no doubt often did know - were inadequate or unsound and Governments and municipalities have been misled thereby. Information as to increased cost due to changed conditions or changes in design has been withheld. Appropriations made by the Legislature for one purpose have frequently been used for other and unauthorized purposes and the Government has been kept in

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the dark as to what has been done. Without any authority, Legislative or otherwise, he used over $1,100,000 of the funds of the Power Commission for radial railway purposes. On one occasion, pointed out by us, having good reason to believe that payment of certain accounts would not be authorised by the Commission if submitted to it, he had cheques for payment of them issued without the sanction or even the knowledge of the Board and without there being any legal authority for payment. His salary as Chairman is, in our opinion, moderate, having regard to the duties and responsibilities of his position, but his action in using the skeleton organization of The Ontario Power Company to increase it to the present figure was discreditable. He has often been arbitrary and inconsiderate in his dealings with his colleagues and with the Government, and it is needless to say that at times his relations with both have been far from cordial. No head of any Department of the Government doing the things which he did would have kept his position. That he has kept his position, notwithstanding the actions to which we have referred has no doubt been due to his undoubted merits, of which we have spoken, and to the fact that he has a large and devoted following and has created a political force of a character which Governments as a rule are unwilling to antagonize. Frequently in referring in our reports to actions of "the Commission", we are aware that they were actions of the Chairman alone and that his colleague or colleagues, as the case might be, knew little or nothing of them.

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Loose Estimates and Diversion of Appropriations.

It is not proper or seemly that the Government should authorize undertakings involving advances by it running up into the tens of millions of dollars without ascertaining as nearly as possible, at the time it authorizes the development, the extent of its commitments. Nor is it proper or seemly that the Legislature year after year should make appropriations at the request of the Commission for certain specific purposes and that the Commission should divert them for purposes unauthorized and sometimes unlawful and not connected in the remotest degree with the objects for which they were made. The looseness in the preparation of the estimates is a serious matter. When application is made to the Government for authority to proceed with a development, it is entitled to have before it estimates as sound as they can be made, and changes involving greater expenditures should not be made without first being brought to its attention and its sanction obtained.

COPY

We have reason to believe that estimates at the present time are being prepared with greater care than heretofore. If the Government takes adequate precautions, it certainly should not be misled in the future as Governments have been misled in the past. The preparation of estimates is one branch of the work in respect of which the engineering staff is open to adverse criticism. We believe, however, that, in some instances, estimates prepared for the Commission by the engineers and which have not been represented by them as complete and adequate have later been presented by the Commission to the Government as representing the probable cost of the work. A case in point is that of the estimate for the Third Pipe Line of The Ontario Power Company.

Responsibility of Government and Legislature

On many occasions when the Commission has exceeded its legal powers it has afterwards gone to the Government or Legislature for its sanction or approval.

The following testimony on this subject given before us by the late Sir John Hendrie, a member of the Commission from 1906 to 1914, is much to the point and, in our opinion, absolutely sound:

Q.- What do you think of the practice of introducing validating Acts?

A.- I think it is improper.

Q.- Would you think this might be sound: To lay down the rule that these acts should not be done before legislation, authorizing them to be done, should be passed?

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A.- Yes, that is right; just the same as any other legislation.

Its acts having usually been ratified by the Legislature and disapproval of those transgressions that were brought to the attention of the Government by the Auditor having been seldom expressed, the Chairman was undoubtedly encouraged to continue to disregard the law. If a Government with the power of removal in its hands fails to act when wrongdoing is brought to its attention, it must bear a large degree of responsibility for it, and for future transgressions as well.

Government should keep in close touch with the Commission

The importance of the relations between the Government and the Commission and between the Commission and the municipalities, and the

importance of the Government being more closely in touch with the operations of the Commission than it has been in the past is dealt with in our report on "History and General Relations" and cannot well be summarized here. We regard these as matters of great importance and refer Your Honour to the report mentioned for our views and recommendations upon these subjects. If the Government is to have full and accurate information as to the Commission's operations, we believe that it will have to secure this information through a representative of its own, fully qualified to keep in touch with the work of the Commission in all its branches. It cannot afford to conduct its business with the Commission as loosely as it has been conducted in the past.

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Government Misled in Queenston-Chippawa Undertaking

As we have already stated there has been a notable lack of frankness in the dealings of the Commission with the Government. As pointed out, the estimates submitted by the Commission to the Governments for works which it sought authority to construct have been, in many instances, far too low. Long after it was known by the Commission that the estimates were too low, and that the estimated cost would be very largely exceeded, information as to the increased cost has been withheld from the Government. This was notably the case in the matter of the Queenston-Chippawa undertaking. As we have shown in our report on this undertaking, the original estimate of cost for a 300,000 horsepower development was $24,316,815 and this, in fact, was the only detailed estimate ever submitted until years after when the work had apparently got beyond control and consultants were called in to advise. After the estimate of $24,316,815 was submitted, added quantities, changes in design

and so forth brought the estimate, according to figures based on unit prices used in the estimate and prepared by our Consulting Engineer, up to approximately $35,000,000 for a 500,000 horse-power immediate installation, and canal and other works for a final installation of 500,000 horse-power. Yet the cost of the plant as completed with a capacity of approximately 550,000 electrical horse-power will be about $84,000,000. Thus the Government in authorizing the construction of a work at an estimated cost of $24,000,000 in effect committed itself to the construction of a work which under the Commission, grew in capacity and cost until the total cost will exceed the original estimate by $60,000,000. This is startling, notwithstanding the fact that a considerable portion of the increase was due to the difficult and extraordinary conditions that prevailed during and after the war, and also to the increased capacity of the plant.

COPY

In addition a serious mistake was made in over-estimating the capacity of the electric and steam shovels for this work. This led to great delays in the progress of the work; to the purchase of additional construction plant and the engagement of extra men when costs were at their peak, and to a "rush schedule", which added enormously to the cost of the work, without adding anything to its capacity or efficiency. The "rush schedule" would never have been necessary had the construction work been under a proper management, and this together with other factors, all of which we have fully dealt with in our report on the Queenston-Chippawa undertaking, resulted in an unjustifiable excess cost which reached at least $12,000,000.

The Commission did not inform the Government that the estimate submitted would be largely exceeded until nearly three years after the work had been begun although it knew it long before—probably almost from the beginning. Its knowledge of subsequent increases in cost was also withheld. It is clear that the Government was misled. Such increases as were due to additional quantities and changes in design were made by the Commission without the matter ever being submitted to the Government and its authority for making these increases sought. The first notice of the increase in cost came to the Government indirectly from the Auditor. It seems inconceivable that the Commission should have regarded costs so lightly and that the financing of this great work should have been carried on by it in such a loose way.

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Faulty Construction Management
in Queenston-Chippawa Development

A primary mistake was made by the Commission in placing the management of the construction of this work in the hands of its engineers who had not had such a wide experience in works of great magnitude as would justify the Commission in leaving it in their hands. The work, having got beyond the control of the Government, finally appears to have got beyond the control of the Commission itself and its engineers.

The Commission, having decided to do the work itself, should have placed it in the hands of a man of high standing and wide experience in construction work of great magnitude who would have reported directly to the Commission. It should not have placed it in the hands of engineers already

fully engaged and without the wide experience in construction work that such a man would have had.

As we have stated in our report on the Queenston-Chippawa Power Development, the Commission lacked throughout the steadying influence of financial responsibility. It got money almost for the asking, and it got it not only from the Government but by diverted millions which it held in trust for other purposes.

Government Misinformed

No Government should accept with confidence estimates prepared by a promoter of a scheme seeking support, even though the promoter may be a public body. If the estimate for the Queenston-Chippawa Development instead of being submitted to outside engineers years after the work was begun, had been submitted to them in the first instance, the Government would have at once found out that it was unsound and could not be relied upon. If it had kept in touch with the work through a representative of its own, who would from month to month have compared actual costs of the work done with the estimates submitted, it would have learned of the increases in cost long before they were brought to its attention by the Commission. We have, in our report on The Ontario Power Company, submitted an analysis of the estimate submitted to the Government in that instance, which shows how faulty and unreliable it was. We are forced to the conclusion that estimates were often submitted by the Commission, not so much with the view of enabling the Government or the municipalities concerned to form clear ideas of what the cost of

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the undertaking might be, but with the view of obtaining for the Commission authority to proceed with the work.

Loose Statements and
Loose Estimates Injurious to Public Ownership

The success of the publicly-owned and operated utility for supplying electrical power or energy to the people of Ontario does not depend upon, but is rather hampered by, loose statements or estimates as to the actual or prospective cost of such electrical power or energy when such cost may be unduly burdened by extravagant, unauthorized and unjustifiable cost of generating and transmission works. Nor is the cause of public ownership advanced by misleading statements in regard to the certainty as to the time within which and the extent to which municipal corporations which have entered or may hereafter enter into contracts with the Commission will acquire complete ownership of the works constructed or acquired for their benefit free from all encumbrances and in a condition approximately as good as new. In performing its function as administrator of a great public trust, the Commission ever should bear in mind that it was created by the Legislature, is financed by the Province, and its powers and authority are defined by the Statutes.

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Operation of Radial Railways.

In our opinion, the Commission made a great mistake in entering into the radial railway field. As pointed out, restitution should be made of the funds which it diverted from power undertakings and wrongfully used in connection with certain radial railways. The sooner that it is freed from all connection with radial railway operation the better it will be for the Commission and for the Province.

Private Companies Operated by Commission - Ontario Power Company and Certain Properties of the Toronto Power Company and its Subsidiaries.

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Although the liability of the Province in respect of private companies operated by the Commission amounts to many millions, the Province has no direct control of the affairs of the companies. Its interests might well be made more secure by amendment to The Power Commission Act.

Central Ontario System - Province-Owned.

Although it was understood that the properties of the Central Ontario System would be made over for operation under The Power Commission Act, little progress has been made in this direction. We have recommended the "unscrambling" of the System and placing its operation under the terms of The Power Commission Act.

Obligations on Bonds.

We have called attention to the powers given to the Government under Section 14c and 14d of The Power Commission Act to guarantee bonds issued or assumed by the Commission. Under the Statute these powers can be exercised

without limit and without direct authority from the Legislature. The powers are extremely wide. Under the law as it now stands, the Government, without going to the Legislature, could guarantee obligations amounting to hundreds of millions of dollars, for the payment of which in the event of default the Province would be as fully liable as it is on bonds issued directly by it. We have already pointed out that when guaranteeing bonds in the past the Government has apparently fixed no time of repayment of the obligations which it has guaranteed or provided for the creation of sinking funds therefor. For the repayment of the bonds of The Ontario Power Company guaranteed by it, no sinking fund was created at first and at present sinking funds are only partially provided for. In the case of some of the bonds no provision whatever for repayment in the way of sinking fund has yet been made. It would seem proper if the Government guarantees bonds that it should at the same time see that proper provision for their repayment is made, and it would also seem desirable that when any guarantee is given, the Legislature should be informed of the extent of the obligations assumed.

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Accounts with Government.

With the consent and approval of your late Government our Accountants made a thorough examination of the books and records in the Department of the Provincial Treasurer showing the dealings between the Government and the Commission. The subject is fully dealt with in our report entitled "Cost of Money Advanced to the Hydro-Electric Power Commission by the Province of Ontario". Our examination showed that for years past the annual payments made by the Commission to the Government as the

cost of money, were considerably less than the actual cost of the money to the Government.

The Auditor

In our opinion, the salary of the Government Auditor should not be fixed, as at present, by the Commission, subject to approval by the Government but should be fixed by the Government alone.

Favoured Treatment to Niagara System

Many of those who have testified before us during the course of our investigation have stated that there is a tendency for industries to be drawn from the smaller centres of the Province to the larger centres lying within the Niagara System. This tendency, which they characterize as an unhealthy tendency, has been stimulated by the lower rates for power prevailing within the Niagara System. We find that the lower rates in the Niagara System are due, not only to the large production and large consumption of power within a comparatively small area, but to the action of the Commission itself. In the smaller centres of Ontario the consumers of power have to pay rates sufficiently high to provide a sinking fund that will pay the whole of the cost of the development within thirty years, while at Niagara the Commission, according to a statement submitted to us by it, proposes to make the period for repayment of expenditures forty years instead of thirty years, apparently taking the view that the Niagara developments do not come under the general provisions of The Power Commission Act. Then again the plants

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at Niagara Falls were largely paid for by the issue of bonds. The Commission has, in the past, taken the position that it is not required to provide sinking funds to meet the bonded indebtedness in the same manner as for cash advances under The Power Commission Act, and in doing so only to a limited extent. For some of these bond issues no sinking fund whatever has so far been created. Thus the consumer of Niagara power has the advantage of a longer sinking fund period where sinking funds are provided; and for a large portion of the cost of the developments is at present required to provide no sinking fund whatever. Today, although all the power produced is being sold, less than 20% of the cost of the present works of the Niagara System is being paid for on a thirty-year sinking fund basis. It appears to us unlikely that the Legislature intended to give the Niagara System such an advantage over the smaller systems throughout the Province and thus stimulate the centralising tendency to which exception is so widely taken. If the general provisions of The Power Commission Act as to sinking funds were applied by the Commission in respect of the Niagara System, no undue burden would thereby be placed upon the consumers of power, while the discrimination which now exists against the smaller centres would to this extent cease.

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Revision of Laws Required.

There is an apparent necessity for a complete revision, and probably, consolidation of The Power Commission Act, The Ontario Niagara Development Acts and of other Statutes affecting the powers and duties of the Commission.

Centralized Power Development

Mr. Gaby assures us, and we have no doubt that he correctly states the fact that all reasonable precautions have been taken by the engineers of the Commission to guard against accident at the power plants. When one realises the extent to which the production of power is centralized within a very small area, and that an accident or the act of some irresponsible person might put the whole plant out of operation, one cannot but be impressed with the importance of providing a most ample contingency reserve. The accident at the plant of The Ontario Power Company in April, 1922, destroyed several of the generating units, and if one of the heavy pieces of machinery which went up through the roof had fallen at a place but a few feet distant from the spot where it did fall the whole plant might have been destroyed.

COPY

Liberty of Management.

While, in our opinion, the Commission should be strictly accountable to the Government and the Legislature and should observe the Statutes regarding it, we are strongly of opinion that the Commission should not be a "Department of the Government" in the strict sense of the term, but that it should have full liberty within itself. To make it a Department of the Government in the same sense that a Department of a Minister of the Crown is a Department of the Government would, we believe, greatly lessen its usefulness and efficiency. It should be kept free from the patronage hunter. If it were turned over to the patronage hunter and appointments made on purely political grounds,

it would receive what we believe would prove to be a fatal blow. So says Sir Adam Beck and we fully agree with him.

Lack of Touch with Municipalities

There is a widespread feeling that the Commission does not keep in as close touch as it should with the municipalities. We believe that there is ground for this feeling. We have dealt with this subject in our report on "History and General Relations".

Liability of the Province in respect of Cash Advances.

The municipalities give no bonds to secure the advances made by the Province. The Province issues its own bonds and it alone is liable on them. It can collect from the municipalities only through the Commission which makes contracts with them for the sale of power. So far less than 2 per cent. of the advances made by the Province have been provided for by sinking funds. At the present time, the obligations incurred by the Government in respect of the undertakings amount to more than half the total Provincial debt.

COPY

Water Rentals and Taxation

The questions of the adequate taxation of the properties of the Commission and the fixing of a reasonable price for water rental are, in our opinion, matters for consideration by the Legislature.

Qualification and Number of Members of the Commission.

The works administered by the Commission are of such great and increasing value and the interest of the Province in them is so enormous that it is important that the members of the Commission should be highly qualified men. The general opinion of those that testified before us was that the number of members of the Commission should not exceed three.

A Great Development

The value to Ontario of the power developments under the control and management of the Commission is inestimable. Its greatest development by far is that at Queenston-Chippawa. Respecting this Development we cannot do better than quote the following paragraph from our report upon it:

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"The design of the Queenston-Chippawa Development was based upon the most intricate calculations known in the theory of hydraulics, but even so there was some doubt as to whether or not the result sought for would be attained through it. It now appears clear that the engineers of the Commission, as designers of this great work, surpassed even their own expectations. The canal was designed to pass 15,000 cubic feet of water per second, but we are advised by our Consulting Engineer that it is capable of passing 18,000 cubic feet of water per second or more. The engineers stated that they hoped to get thirty horse-power per second-foot, but the test which we have had made indicates that this amount will be exceeded. It was originally estimated that it would develop 500,000 electrical horse-power, but it seems clear that it will, on completion, develop 550,000 electrical horse-power - a most substantial increase. The plant now has an efficiency of over 90 per cent., - an unusually high figure and one which indicates a fineness of design seldom, if ever before, attained in a work of this character. It is, in short, a magnificent piece of engineering."

Our Staff

We cannot conclude our report without making reference to the valuable and efficient services rendered to us in the course of our investigations by Mr. Walter J. Francis, our Consulting Engineer, who has, with great ability and untiring energy and with a degree of thoroughness seldom equalled, examined the engineering records of the Commission, arranged and classified many of them, and prepared charts in which he tells in graphic form the history of construction, operation and results. He has also prepared for us from the great mass of material in the files of the Commission, reports on all engineering matters that have been the subject of our inquiry. Mr. Francis has, throughout the whole of his work, received most valuable and cordial co-operation from the engineering staff of the Commission. Without their help and co-operation it would have been impossible for him to have accomplished what he did in the time that he did it. We also desire to express our deep appreciation of the work done for us by our Accountants, Messrs. Price, Waterhouse & Co., who have made a thorough examination of the accounting system of the Commission in its various branches, of its accounts with the Province, of the accounts of all its Systems and its various activities, and have presented us with clear and comprehensive reports thereon. From our Secretary, Mr. J.E.W. Bower, himself an Engineer, who has kept our records, organized our work and seen that it was done and to a large extent drafted our reports, and from his staff, we have received most valuable and efficient service. Mr. J.A. McAndrew, K.C., and the other members of our Legal Department have been of great

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help to us. Mr. McAndrew's thorough knowledge of the laws relating to the Commission and assistance in the preparation of our reports have been invaluable. Mr. C. T. Clarkson and his partner, Mr. H.E. Guilfoyle, have, from the first, been of great assistance to us and have placed at our disposal their very complete knowledge of the Commission in all its relations.

We also desire to express our deep appreciation of the help and consideration in the performance of our work that we have received from your Governments.

COPY

March 5th, 1924.

W. D. Gregory, Chairman

H. J. Haney

Lloyd Harris

J. A. Ross

R. A. Ross

APPENDICES

COPY

APPENDIX "A"

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LIST OF REPORTS BY

MESSRS. WALTER J. FRANCIS & COMPANY, CONSULTING ENGINEERS

APPENDIX "A"

List of Reports furnished to the Hydro-Electric Inquiry Commission by Messrs. Walter J. Francis & Company, Consulting Engineers:

Number	Title
	The Queenston-Chippawa Power Development
101	(General Index (Chapter "A" - Preface (Chapter "B" - History (Chapter "C" - Advisory Reports
102	Chapter "D" - Power Available
103	Chapter "E" - General Description
104	Chapter "F" - Organization
105	Chapter "G" - Contract Work and other Construction Procedure
106	Chapter "H" - Construction Plant - Concrete and Reinforced Concrete
107	Chapter "H" - Construction Plant - Transportation
108	Chapter "H" - Construction Plant - Earth and Rock Excavation, Canal
109	Chapter "H" - Construction Plant - Earth and Rock Excavation, Intake, Welland River, Forebay, Power House and Tailrace
110	Chapter "J" - Quantities - Right-of-Way
111	Chapter "J" - Quantities - Temporary Buildings and Commissariat for Construction
112	Chapter "J" - Quantities - Bridges and Crossings
113	Chapter "J" - Quantities - Summary
114	Chapter "K" - Costs - Analysis of Estimates - Part I - Text
115	Chapter "K" - Costs - Analysis of Estimates - Part II - Appendices
116	Chapter "K" - Costs - Analysis of Expenditures to March 31, 1922
117	Chapter "L" - Evolution of the Development
118	Chapter "M" - Discussions
119	Chronological Charts

COPY

Number	Title
120	The Ontario Power Company of Niagara Falls Description of Plant
121	The Ontario Power Company of Niagara Falls Report on Accident on April 20th, 1922
122	The Ontario Power Company of Niagara Falls Report on Condition of Conduit No. 1
123	The Ontario Power Company of Niagara Falls Study of the System
124	Study of Central Ontario System - Central Ontario Section
125	Study of Central Ontario System - Nipissing Section
126	Study of Thunder Bay System
127	Economics - Nipigon System - Estimates of Hydro-Electric Power Commission
128	Economics - [illegible] System - Study by Walter J. Francis
129	Study of Eugenia System
130	Study of St. Lawrence System
131	Study of Wasdell's System
132	Study of Severn System
133	Study of Rideau System
134	Study of Muskoka System
135	Study of Ottawa System
136	Study of Thorold System
137	Study of Essex System
138	Study of Bonnechere River Storage System
139	Study of Niagara System - Part I - Being for Period ending October 31st, 1921
140	Study of Niagara System - Part II - Being for Period commencing November 1st, 1921
141	Principal Characteristics of H. E. P. C. Plants
	Transcriptions of H.E.P.C. Documents
142	Report on Excavation Methods and Equipment
143	Comments on Evidence given before the Commission by Contractors on May 18th, 22nd and 23rd, 1923.

COPY

O-ELECTRIC INQUIRY COMMISSION

OR ENCLOSURE TO

APPENDIX "B"

COPY

LIST OF REPORTS AND MEMORANDA

BY

MESSRS. PRICE, WATERHOUSE & CO., AUDITORS

APPENDIX "B"

List of Reports and Memoranda, etc., furnished to the Hydro-Electric Inquiry Commission by Messrs. Price, Waterhouse & Co., Auditors:

Number	Title
1	Preliminary Chart of Undertakings
2	(Trial Balance to November 30th, 1921 (Trial Balance to December 31st, 1921 (Trial Balance to January 31st, 1922 (Trial Balance to February 28th, 1922
3	(Trial Balance to March 31st, 1922 (Trial Balance to April 30th, 1922 (Trial Balance to May 31st, 1922 (Trial Balance to June 30th, 1922 (Trial Balance to July 31st, 1922 (Trial Balance to August 31st, 1922 (Trial Balance to September 30 , 1922
	Comparative Balance Sheets of
4	Thorold System
5	Essex System
6	Sandwich, Windsor & Amherstburg Railway and Subsidiary The Windsor & Tecumseh Electric Railway Company
7	Guelph Radial Railway
8	Central Ontario System
9	Ontario Power Company of Niagara Falls and Subsidiary The Ontario Transmission Company Limited
10	Condensed Statement of Assets and Liabilities for years 1917, 1918, 1919, 1920 and 1921

COPY

Number	Title
	Operating Accounts of
11	Thorold System
12	Guelph Radial Railway
13	Ottawa System
14	Essex System
15	Bonnechere River Storage System
16	Eugenia System and Eugenia Rural Lines
17	Muskoka System
18	Severn System
19	Rideau System
20	St. Lawrence System and St. Lawrence Rural Lines
21	Wasdell System and Wasdell Rural Lines
22	Niagara System and Niagara Rural Lines
23	Thunder Bay System
24	Sandwich, Windsor & Amherstburg Railway and Windsor and Tecumseh Electric Railway Company
25	Central Ontario System
26	Ontario Power Company of Niagara Falls and Subsidiary The Ontario Transmission Company Limited
	Investigation of Accounts of
27	Niagara System
28	Ontario Power Company of Niagara Falls and its Subsidiary Ontario Transmission Company, Limited
29	Wasdell System
30	Rideau System
31	Muskoka System
32	Bonnechere River Storage System
33	St. Lawrence System
34	Ottawa System
35	Severn System
36	Essex System
37	Guelph Radial Railway
38	Eugenia System
39	Thorold System
40	Sandwich, Windsor and Amherstburg Railway
41	Toronto-Port Credit Railway and Port Credit-St. Catharines Railway

COPY

Number	Title
	Statistics re Estimated and Actual Power Rates, etc., of
42	Severn System
43	St. Lawrence System
44	Ottawa System
45	Niagara System
46	Eugenia System
47	Rideau System
48	Muskoka System
49	Wasdell System
	Re: Queenston-Chippawa Power Development
50	Memorandum re Employee James Calvert, Patrolman
51	Memorandum re Right-of-Way of Chippawa Plant, July 17, 1922
52	Memorandum re Right-of-Way of Chippawa Plant, July 20, 1922
53	Memorandum re Employees performing operations classified as Machine Shops Operations
54	Memorandum re Payments to Consulting Engineers
55	Memorandum re Camp Management
56	Memorandum Relative to Remuneration of Executive Staff
57	Letter dated August 14th, 1922, to Mr. Francis, re Rates of Wages Paid on Queenston-Chippawa Development
58	Letter dated August 25th, 1922, to Mr. Francis, re Remuneration to Staff
59	Memorandum dated August 30, 1922, re personal history of Mr. B. O. Salter, Purchasing Agent
60	Memorandum re Rates of Wages paid
61	Report upon Accounting Systems and Methods employed
62	Report on Walkerton Quarry
63	Minutes and Correspondence re Wage Rates and Labor Conditions
	Miscellaneous
64	Memorandum re, Bonds and Debentures Issued, Assumed or Guaranteed by the Hydro-Electric Power Commission of Ontario and by controlled and operated companies as at October 31st, 1921
65	Memorandum, Re- Analysis of Capital Assets of the Hydro-Electric Power Commission and of controlled and operated companies and systems

COPY

Number	Title
66	Letter dated August 5th, 1922, re Port Credit to St. Catharines Radial Railway and Toronto to Port Credit Radial Railway
67	Income Tax Returns - Year 1919
68	Income Tax Returns - Year 1920
69	Income Tax Returns - Year 1921
70	Analysis of Expenditure of $2,048,663.50 (to 31st October, 1921) on Eugenia System
71	Report upon General Accounting System
72	Letter and Statements re rates and revenue of Niagara and Wasdell's Systems
73	Report upon Accounts of Central Ontario System from March 1, 1916, to October 31, 1921
74	Detail Memoranda re General Accounting System
75	Memorandum re Earnings of the Electric Power Company, Limited, and Companies controlled by it
76	Letter dated August 22, 1922, giving list of financial and other reports rendered to the Commission or the Government
77	Letter dated October 25, 1922, re location of bonds of $11,350,363 authorized for issue by the Hydro-Electric Power Commission of Ontario
78	Letter dated November 24th, 1922, re the value of the $3,350,000 of debentures issued by the Province
79	Letter dated November 23, 1922, re deficit as at October 31, 1922, of the Central Ontario System
80	Letter dated December 12th, 1922, re rates per horse-power on suggested contract of 10,000 horse-power based on contract made at present and one year hence
81	Extracts from Minutes of Meetings of Commissioners and Agenda therefor - Year 1918
82	Extracts from Minutes of Meetings of Commissioners and Agenda therefor - Year 1919
83	Extracts from Minutes of Meetings of Commissioners and Agenda therefor - Year 1920
84	Extracts from Minutes of Meetings of Commissioners and Agenda therefor - Year 1921
85	Extracts from Minutes of Meetings of Commissioners and Agenda therefor - Year 1922
86	Remuneration of the Commissioners
87	Report dated January 24, 1923, on Proposed Radial Railways
88	Niagara System - Upon changes in investment in capital assets and estimated results from operations
89	General Report on Investigation of Financial Accounts
90	Central Ontario System - Memorandum re Option of Certain Municipalities to Purchase Local Electric Systems
91	Investigation of Provincial Accounts with reference to Interest Charges on Cash Advances
92	Summary of Property Accounts as at October 31, 1922
93	Statement in respect of Sinking Funds (Niagara System)
94	Report on Investigation of Insurance Department

DRO-ELECTRIC INQUIRY COMMISSION

Y FOR ENCLOSURE TO

APPENDIX "C"

COPY

HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO

STANDARD DEPRECIATION RATES

TO-ELECTRIC INQUIRY COMMISSION
FOR ENCLOSURE TO

APPENDIX "C"

COPY

TORONTO, OCTOBER 24th, 1922.

SIRS:

- RE: LIFE OF EQUIPMENT -
STANDARD DEPRECIATION RATES

At the present time the rates of depreciation used, for the various systems operated by the Commission, are calculated on the basis of the life of equipment and residual value of same, as set out on the attached sheets, marked "Schedule A".

COPY

At the time it was decided to use these figures, as a basis of calculating depreciation rates for the various systems, the Commission's systems had not been in operation a sufficient length of time for the life of the various parts of the system to be determined from actual experience on the Commission's system, and the figures used were taken to include obsolescence and contingencies, obsolescence then being considered an important factor. It has been found, however, that under actual operating conditions, as maintained on the systems on which the various items of equipment are used, that years' life of equipment, as at present used, are entirely too short, and based on our own knowledge, gained from actual experience, it has been decided to recommend that the depreciation rates used for the various systems be revised and calculated on the basis of the estimated years' life of various items of equipment included in these systems, as set

out in the attached sheets, marked "Schedule B".

I would call your attention to the fact that, in many cases, it has been found advisable to use an increase in the life of equipment over and above the years' life now being used in calculating depreciation on the various systems. I believe, however, that the figures set out in Schedule "B", attached hereto, are quite conservative, in view of the fact that owing to the advancement in the art of electric power generation, transmission and distribution during the past ten years, the factor of obsolescence, which was considered in the figures set out in Schedule "A", is no longer an important factor in determining depreciation rates of this class of equipment, and I would, also point out that a separate account is set up to take care of contingencies, so that the depreciation fund does not have to take care of contingency items.

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I would, therefore, recommend that the depreciation rates for the various systems should be calculated on the basis of the figures set out in the attached sheets, marked "Schedule B".

I would ask your instructions in connection with this matter.

I have the honour to be,

Sirs,

Your obedient servant,

CHIEF ENGINEER

To:- Colonel Sir Adam Beck, Kt.,

Chairman, and Commissioners.

(SCHEDULE "A")

May 9th, 1922.

Depreciation Rates

Used in Making Average Rates for Systems

S. F. Basis at 4%

Item	Years' Life	Residual Value %	Straight Line Depn. %	S. F. Dep. Rate %
F.				
Buildings (Transformer Stns.)	60-	20	1.33	0.34
Buildings (Distributing Stns.)	60	20	1.33	0.34
Buildings Frame (Barns & Storehouse)	30	25	3.75	
G.				
Cable, underground	15	30	4.67	3.50
Cable, overhead, copper	75	60	0.53	0.09
Cable, overhead, aluminum	75	60	0.53	0.09
Cable, overhead, steel	20	10	4.50	3.02
Canals	-	100	-	-
Clearing	-	100	-	-
Cottages (Operators')	30	25	3.75	2.52
Concrete, general	100	-	1.00	0.08
Concrete, poles	50	-	2.00	0.66
H.				
Duct System, underground & Manholes	50	-	2.00	0.66
Dams, except storage	100	-	1.00	0.08
Dams, storage		Non-depreciable		
I.				
Equipment, Station, Electrical	25	20	3.20	1.92
Equipment, Station, Mechanical	25	5	3.80	2.28
Exciters	25	20	3.20	1.92
Excavating	-	100	-	-
K.				
Fixtures, Street, Ltng. Mun.	10	2	9.80	6.16
Flume, wood	20	2.5	4.88	3.27

COPY

COPY

(SCHEDULE "A")

Item	Years' Life	Residual Value %	Straight Line Depn. %	S.F. Dep. Rate %
G.				
Generators & Exciters	25	20	3.20	1.92
Gate House	50	-	2.00	0.66
H.				
Houses (operators')	20	25	3.75	2.52
House meters	20	5	4.75	3.19
I				
Insulators, H.T.	8	-	12.50	10.85
Insulators, L. T.	12	-	8.33	6.66
Iron & Steel (Misc.)	30	5	3.17	1.69
L.				
Lands for Storage			Non-Depreciable	
Lands for H.T. Tower Line			Non-Depreciable	
M.				
Meters, service, Mun.	20	5	4.75	3.19
Mechanical Equip. Stns	25	5	3.80	2.28
P.				
Penstocks, steel	50	8	1.84	0.60
Pipe, wood stave	20	2.5	4.88	3.27
Power House, building	50	7	1.86	0.61
Pole Lines (without cable)	16	5	5.94	4.35
Poles, wood	16	5	5.94	4.35
Poles, concrete	50	-	2.00	0.66
R.				
Race, Tail	-	100		-
Right-of-Way, H.T. Mag. Lines		Non-Depreciable		
Right-of-Way, L. T. Pole Lines	-	100		-
S.				
Sites, storage		Non-Depreciable		
Sites, station	-	100	-	-
Steel & Iron (Misc)	30	5	3.17	1.69
Surge Tanks (steel)	50	10	1.80	0.59
Street Lt. Fixtures (Mun.)	10	2	9.80	8.16
Stop Logs, timber, etc.	25	5	3.80	2.28

COPY

(SCHEDULE "A")

Item	Years' Life	Residual Value %	Straight Line Depn. %	S.F. Dep. Rate %
F.				
Turbines, Governors, etc.	25	5	3.80	2.28
Towers, steel, transmission	50	5	1.90	0.62
Telephone line complete on own poles Niagara	12	10	7.50	5.99
Tailrace	-	100	-	-
Transformers, station	25	20	3.20	1.92
Transformers, service, pole type	20	20	4.00	2.69
Timber, stop logs, etc.	25	5	3.80	2.28
U				
Underground cable	15	30	4.67	3.50
Underground Duct	50	-	2.00	0.66
V.				
Valves	25	5	3.80	2.28
W.				
Wood poles	16	5	5.94	4.35
Wood stop logs, etc.	25	5	3.80	2.28
Wood stave pipe	20	2.5	4.88	3.27
Wire, steel	20	10	4.50	3.02
Wire, Weatherproof (Mun.)	30	30	2.33	1.25

COPY

(SCHEDULE "B")

STANDARD DEPRECIATION RATES

AS SET OUT BY COMMITTEE ON SEPT. 29/ 22 - R. T. JEFFERY, CHAIRMAN.

COPY

Item	Years' Life	Residual Value %	Straight Line Dep. %	S.F. Depn. %
B.				
Buildings, Transformer Stations	75	10	1:20	0:20
Buildings, Distributing Stations	60	10	1:50	0:38
Buildings, Frame, Barns & Storehouse	50	10	1:80	0:59
Buildings, Sheet Iron	20	5	4:75	3:19
Buildings, Operators' Cottages	50	10	1:80	0:59
Buildings, Power House Brick	75	5	1:27	0:21
Buildings, Pwr. Hse. Concrete	100	5	0.95	0.08
C.				
Cable, Underground	30	25	2:50	1:34
Cable, Conductor, Overhead, Copper	100	50	0:50	0:04
Cable, Cond. Overhead, Alum.	75	40	0:80	0:13
Cable, Cond. Overhead, Steel	20	5	4.75	3.19
Canals	Inf.	100	-	-
Clearing	Inf.	100	-	-
Cottages, Operators'	50	10	1:80	0:59
Concrete, General	100	-	1:00	0:08
Concrete, Poles	50	-	2.00	0.66
D.				
Duct System, Underground & Manholes	100	-	1:00	0:06
Dams, Concrete, Reinforced	100	-	1.00	0.08
Dams, Concrete, Base	Inf.	100	-	-
Dams, Earth	Inf.	100	-	-
Dams, Timber	20	-	5.00	3.36
E.				
Equipment Station, Electrical (Except Transf. Gas & Ex.)	35	10	2:57	1:22
Equipment Station, Mechanical	35	5	2:71	1:29
Exciters	30	10	1.80	0.59
Excavating	Inf.	100	-	-
F.				
Fixtures, Street Ltg. Mun.	20	5	4:75	3:19
Flume, Wood	20	2.5	4.87	3.27

COPY

(SCHEDULE "B")

Item	Years' Life	Residual Value %	Straight Line Dep. %	S.F. Depn. %
G.				
Generators & Exciters	50	10	1.80	0.59
H.				
Houses, Operators'	50	20	1.80	0.59
House Meters	50	5	1.90	0.62
Hydraulic Substructures	100	-	1.00	0.08
I.				
Insulators, Suspension Type	15	-	6.67	4.99
Insulators, Pin Type	15	-	6.67	4.99
Iron & Steel Misc.	30	5	3.16	1.69
L.				
Lands, for storage, Eugenia		Non-Depreciable		
Lands, Niagara, H.T. Rt.-of-Way		Non-Depreciable		
Lands, other than above	Inf.	100	-	-
M.				
Meters, Service, Mun.	50	5	1.90	0.62
Mechanical Equip. Stations	35	5	2.71	1.29
P.				
Penstocks, Steel	50	5	1.90	0.62
Pipe, Wood stave	25	2.5	3.90	2.34
Power House Superstruct. Brick	75	5	1.27	0.21
Power House Superstruct. Concrete & Stone	100	5	0.95	0.08
Pole Lines (Without conductor)	20	5	4.75	3.19
Poles, wood	20	10	4.30	3.00
Poles, concrete	50	-	2.00	0.66
R.				
Racks, Steel Stop Logs & Steel Gates	50	5	2.90	0.62
Right-of-Way, H.T. Line		Non-Depreciable		
Right-of-Way, Other than above	Inf.	100	-	-
Roads	Inf.	100	-	-

COPY

(SCHEDULE "B")

Item	Years' Life	Residual Value %	Straight Line Dep. %	S.F. Depn. %
S.				
Sites, Storage, Eugenia		Non-Depreciable		
Sites, Station	Inf.	100	-	-
Steel & Iron Misc.	30	5	3.16	1.69
Surge Tanks	50	10	1.80	0.59
Street Light Fixtures, Mun.	20	5	4.75	3.19
Stop Logs, Timber Gates, etc.	25	5	3.80	2.28
T.				
Turbine, Governors, etc.	50	5	1.90	0.62
Towers, Steel Transmission	50	5	1.90	0.62
Telephone Line Complete on own poles, Niagara System	20	30	4.00	2.69
Tailrace	Inf.	100	-	-
Transformers, Station	50	15	1.70	0.56
Transformers, Service Logs, etc.	40	15	2.12	0.89
Timber, Stop Logs, etc.	25	5	3.80	2.28
U.				
Underground, Cable	30	25	2.50	1.34
Underground, Duct	100	-	1.00	0.08
V.				
Valves, Penstocks, Plunger & Butterfly	50	2	1.90	0.62
Valves, Penstocks, Gate	35	5	2.71	1.29
W.				
Wood Poles	20	10	4.50	3.02
Wood Pole Lines (without Cond.)	20	5	4.75	3.19
Wood stop Logs (without Cond.)	25	5	3.80	2.28
Wood Stave Pipe	25	2.5	3.90	2.34
Wire, Steel Conductor	20	5	4.75	3.19
Wire, Weatherproof Copper (Mun.)	50	30	1.40	0.46

COPY

APPENDIX "D"

COPY

PRINCIPAL CHARACTERISTICS OF H.E.P.C. PLANTS

Item		Nipissing
	HYDRAULIC CHARACTERISTICS OF THE PLANTS OF THE HYDRO -	
1	Name of River	South
2	Drainage Area, Square Miles	294
3	Minimum Precipitation per Annum, Inches	30.9
4	Mean Precipitation per Annum, Inches	54.4
5	Minimum Run-off per Month, Cubic Feet per Second	82
6	Mean Run-off per Annum, Cubic Feet per Second	430
7	Turbine Head, Minimum, Feet	68
8	Turbine Head, Mean, Feet	90
9	Years of Precipitation Records	1916 to 1919
10	Years of Gauging Records	1914 to 1921
11	Water Horse Power, Mean	4,300
12	Water Storage, Million Cubic Feet	965
	POWER CHARACTERISTICS AND EQUIPMENT OF THE PLANTS OF THE	
13	Turbines,	
	Number and Rating of each, Horse Power	1 @ 1,100
		1 @ 1,400
	Total Installed Rating, Horse Power	2,500
14	Generators,	
	Number and Rating of each, Kilowatts	1 @ 450
		1 @ 1,050
	Total Installed Rating, Kilowatts	1,500
15	Transformers,	
	Number and Rating of each, Kilo-Volt-Amperes	3 @ 900
	Total Installed Rating, Kilo-Volt-Amperes	2,700
16	Voltage of Output	22,000
17	Frequency, Cycles	60
18	Overall Efficiency of Plant	80%

THUNDER BAY SYSTEM	MUSKOKA SYSTEM	RIDEAU SYSTEM
Nipigon 2 Units	South Falls	High Falls	Carleton Place.

ELECTRIC POWER COMMISSION AS AT OCTOBER 31st, 1921

Nipigon.	Muskoka	Mississippi	Mississippi
9,100	677	450	1,150
16.6	35.0	31.5	31.5
23.0	41.5	35.0	35.0
5,750	203	96	303
6,500	965	513	1,161
75	102	76	9
78	108	78	10.5
1878 to 1920	1877 to 1920	1915 to 1919	1915 to 1919
1905 to 1921	1915 to 1920	1915 to 1922	1919 to 1921
57,600	12,100	4,550	1,390
209,085	1,050	2,620	3,500

HYDRO-ELECTRIC POWER COMMISSION AS AT OCTOBER 31st, 1921.

2 @ 12,500	1 @ 750 1 @ 1,000	3 @ 1,200	3 @ 245
25,000	1,750	3,600	735
2 @ 8,500	1 @ 350 1 @ 600	4 @ 350 1 @ 700	1 @ 150 1 @ 250
17,000	950	2,100	400
4 @ 8,000	3 @ 400	3 @ 750	3 @ 250
32,000	1,200	2,250	750
1 spare			
110,000	22,000	26,400	26,400
60	60	60	60
90%	80%	75%	80%

Item	Fenelon Falls	Auburn
HYDRAULIC CHARACTERISTICS OF THE PLANTS OF THE HYDRO -		
1 Name of River	Sturgeon	Otanabee
2 Drainage Area, Square Miles	1,235	2,800
3 Minimum Precipitation per Annum, Inches	23.1	23.1
4 Mean Precipitation per Annum, Inches	32.3	32.3
5 Minimum Run-off per Month, Cubic Feet per Second.#	250	750
6 Mean Run-off Per Annum, Cubic Feet per Second	#	#
7 Turbine Head, Minimum, Feet	22.5	17.5
8 Turbine Head, Mean, Feet	22.5	17.5
9 Years of Precipitation Records	1883 to 1914	1883to 191
10 Years of Gauging Records	1911 to 1921	1911 to 19
11 Water Horse Power, Mean	#	#
12 Water Storage, Million Cubic Feet	3,500	3,500
Note:- Items marked thus,#, indicate that		
POWER CHARACTERISTICS AND EQUIPMENT OF THE PLANTS OF THE		
13 Turbines, Number amd Rating of each, Horse Power	2 @ 500	3 @ 950
Total Installed Rating, Horse Power	1, 000	2,850
14 Generators, Number amd Rating of each, Kilowatts	2 @350	3 @ 500
Total Installed Rating, Kilowatts	700	1,500
15 Transformers, Number and Rating of each, Kilo-Volt-Amperes.	7 @ 135	2 @ 1,875
Total Installed Rating, Kilo-Volt-Amperes	945	3,750
16 Voltage of Output	1 spare 11,000	6,600 and 2,400 to 44,000
17 Frequency, Cycles	60	60
18 Overall Efficiency of Plant	82%	82%

ONTARIO SYSTEM

Healey Falls	Campbellford	Ramney Falls	Frankford	Trent cn.
ELECTRIC POWER COMMISSION AS AT OCTOBER 31st, 1921.				
.....Trent.....	.....Trent.....	.....Trent.....	.....Trent.....	.....Trent.
.....3,500.....	.....4,200.....	4,200.....	.....4,600.....	4,800
..... 23.1.....	.....23.1.....	23.1.....	.....23.1.....	.....23.1
..... 32.3.....	.....32.3.....	.....32.3.....	.....32.3.....	.....32.3
.....#750.....	.....#820.....	.....#820.....	.....#820.....	.....#820
.....#1200.....	#	1,400	#.....	#
..... 74.....	22.5.....	47.....	17.....	18.6
..... 74.....	.....22.5.....	.....54.....	.....17.....	18.6
.....1883 to 1921.....	1883 to 1914.....	1883 to 1914..	1883 to 1914..	1883 to 1914
.....1911 to 1921.....	1911 to 1921.....	1911 to 1921..	1911 to 1921..	1911 to 1921
..... #10,100.....	#	#8,600.....	#	#
..... 3,500.....	3,500.....	3,500.....	3,500.....	3,500
flow is regulated by the Department of Railways and Canads of Canada				
HYDRO-ELECTRIC POWER COMMISSION AS AT OCTOBER 31st, 1921.				
..... 3 @ 5,600	5 @ 1,100.....	2 @ 5,000 Summer 2 @ 5,500 Winter	4 @ 1,200....	4 @ 1,400
.....16,800.....	.....5,500.....	10,000 Summer 11,000 Winter	.....4,800.....	5,600
..... 3 @ 3,000.....	5 @ 600.....	2 @ 3,600 Summer 2 @ 4,250 Winter	4 @ 650.....	4 @ 750
..... 9,000.....	3,000.....	7,200 Summer 8,500 Winter	2,600.....	3,000
..... 3 @ 3,750.....	4 @ 1,125	2 @ 4,500.....	None...	3 @ 3,000
..... 11,250.....	4,500.....	9,000.....	None.....	9,000
..... 44,000.....	44,000.....	44,000.....	6,600.....	6,600 to 44,000
.....60.....	.....60.....	.....60.....	.....60.....	60
..... 85%.....	.....82%.....	85%.....	.....82%.....	.....82%

Item	Ontario Power Co.	Brindale
HYDRAULIC CHARACTERISTICS OF THE PLANTS OF THE HYDRO -		
1 Name of River	Niagara	Credit
2 Drainage Area, Square Miles	263,440	450
3 Minimum Precipitation per Annum, Inches	Not Relevant	26.8
4 Mean Precipitation per Annum, Inches	Not Relevant	32.2
5 Minimum Run-off per Month, Cubic Feet per Second	Not Relevant	70
6 Mean Run-off per Annum, Cubic Feet per Second	Not Relevant	385
7 Turbine Head, Minimum, Feet	175	Not Ascertai
8 Turbine Head, Mean, Feet	180 about	56, latterly
9 Years of Precipitation Records	Not Relevant	1888 to 1920
10 Years of Gauging Records	Not Relevant	1914 to 1920
11 Water Horse Power, Mean	250,000	2,450
12 Water Storage, Million Cubic Feet	Not Relevant	None at prese
POWER CHARACTERISTICS AND EQUIPMENT OF THE PLANTS OF THE		
13 Turbines, Number and Rating of each, Horse Power	7 @ 11,800 5 @ 15,000 2 @ 16,000 2 @ 18,000	2 @ 840
Total Installed Rating, Horse Power	225,600	1,680
14 Generators, Number and Rating of each, Kilowatts	3 @ 7,500 11 @ 8,776 2 @ 15,000	2 @ 600
Total Installed Rating, Kilowatts	149,036	1,200
15 Transformers, Number and Rating of each, Kilo-Volt-Amperes	18 @ 3,000	None
Total Installed Rating, Kilo-Volt-Amperes	54,000	None
16 Voltage of Output	60,000, and 2,200	30,000.12,000 13,200
17 Frequency, Cycles	25	60
18 Overall Efficiency of Plant	88%	82%

SYSTEM	NORTHERN SYSTEM		
Queenston-Chippawa 5 Units	Eugenia	Wasdell's	Big Chute
ELECTRIC POWER COMMISSION AS AT OCTOBER 31st, 1921.			
.....Niagara,.....	.....Beaver.....	.....Severn.....	.....Severn
.....263,440.....	..... 76.....	.....2,075.....	2,265
...Not Relevant.....	.....34.2.....	.....24.2.....	.....24.2
...Not Relevant.....	.....37.6.....	.....32.4.....	.....32.3
...Not Relevant.....	.....60.....	.....1,000.....	1,000
...Not Relevant.....	.....88.....	.....2,000.....	2,500
..... 296 about.....	.....515.....	.....9.....	56
.....305 about.....	.....524.....	.....12.....	56
...Not Relevant.....	.....1916 to 1921	..1873 to 1916.....	.....1873 to 1916
...Not Relevant.....	.....1913 to 1921.....	.....1913 to 1918.....	.....1913 to 1918
.....300,000 about.....	..... 5,240.....	..... 2,730.....	..... .15,900
...Not Relevant.....	.....740.....	.....16,500.....	16,500
HYDRO-ELECTRIC POWER COMMISSION AS AT OCTOBER 31st, 1921.			
...5 @ 55,000.on.order.....	2 @ 2,250	.....2 @600	.....3.@ 1,300
	1 @ 4,000		1 @ 2,300
..... 300,000 about.....	.....8,500.....	.....1,200.....	6,300
...5 @ 36,000 on order.....	2 @ 1,200.....	.....2 @ 320.....	.....3 @ 720
	1 @ 2,400		1 @ 1,280
.....180,000 about.....	.....4,800.....	.....640.....	3,440
..15 @ 15,000 on order.....	6 @ 900.....	.....7 @ 150.....	.....7 @ 600
.....225,000 about.....	..... 5,400.....	.....1,050.....	4,200
		1 spare	1 spare
...12,000 to 110,000.....	.....22,000.....	.....22,000.....	22,000
.....25.....	.....60.....	.....60.....	60
.....90% about.....	.....85%.....	.....80%.....	..... 82%

HISTORICAL DATA AND CAPITAL COSTS OF THE PLANTS OF THE

	Item	Nipissing
19	Maximum Demand in 1921, Kilowatts	1,265
20	Load Factor for Year 1921	49.1%
21	Output for 1921, Average, Kilowatts	620
22	Power Factor Limits	85% to 92%
23	Construction Year	1910 to 1911
24	Extension Year	1920 to 1921
25	Purchase Year	1916
26	Present Owner	Ontario
27	Capital Cost, Lands and Water Rights	$31,324
28	Capital Cost, Dams and Water Structures	$121,455
29	Capital Cost, Power House	$ 28,577
30	Capital Cost, Equipment	$104,350
31	Capital Cost, Intangible Assets	$ 37,681
32	Capital Cost, Total	$323,297
33	Capital Cost per Horse Power, 1921, Average Output	$ 389
34	Capital Cost per Horse Power, Turbine Rating	$ 147

THUNDER BAY SYSTEM	MUSKOKA SYSTEM		RIDEAU SYSTEM
Nipigon 2 Units	South Falls	High Falls	Carleton Place.

HYDRO-ELECTRIC POWER COMMISSION AS AT OCTOBER 31st, 1921.

.....9,600.....	.....1,056.....	.....1,375.....	.....Not Operating
.....40.8%.....	.....50.8%.....	.....34.6%.....	.....Not Operating
.....3,920.....	.....537.....	.....490.....	.....Not Operating
.... .78.1% to 100%.....	.....72% to 79%.....	.....40% to 75%.....	.....Not Operating
.....1919 to 1921.....	.....1915 to 1916.....	.....1919.....	1910
.....None.....	.....1915 to 1916.....	.....None.....	1913
.....None.....	.....1915.....	.....1918.....	1920
.....H.E.P.C.....	.....H.E.P.C.....	.....H.E.P.C.....	.....H.E.P.C..
..Included in Item 28.....	$17,524.....	$10,478.....	$ 10,275.
$4,151,056.....	$52,933.....	$279,507.....	$ 12,450
$ 537,963.....	$20,318.....	$240,758.....	$ 20,682
$ 948,955.....	$57,546.....	$164,711.....	$ 17,464
$ None.....	$...None.....	$ None.....	$ None
$5,637,974.....	$148,321.....	$695,414.....	$ 60,871
$ 1,075.....	$ 216.....	$ 1,064.....	.....Not Operating
$ 226.....	$ 85.....	$ 193.....	..... Not Operating

HISTORICAL DATA AND CAPITAL COSTS OF THE PLANTS OF

	Item	Fenelon Falls	Auburn
19	Maximum Demand in 1921, Kilowatts	700	2,000
20	Load Factor for Year 1921	57%	66%
21	Output for 1921, Average, Kilowatts	400	1,320
22	Power Factor Limits	50% to 90%	50% to 90%
23	Construction Year	1899	1911 to 1912
24	Extension Year	None	None
25	Purchase Year	1916	1916
26	Present Owner	Ontario	Ontario
27	Capital Cost, Lands and Water Rights	$ 23,395	$ 25,140
28	Capital Cost, Dams and Water Structures	$ 1,426	$ 58,543
29	Capital Cost, Power House	$ 3,130	$116,103
30	Capital Cost, Equipment	$ 48,604	$ 89,624
31	Capital Cost, Intangible Assets	$150,000	$127,500
32	Capital Cost, Total	$226,555	$416,910
33	Capital Cost per Horse Power, 1921, Average Output	$ 442	$ 235
34	Capital Cost per Horse Power, Turbine Rating	$ 227	$ 146

ONTARIO SYSTEM

THE HYDRO-ELECTRIC POWER COMMISSION AS AT OCTOBER 31st, 1921.

Healey Falls	Campbellford	Ramney Falls	Frankford	Trenton
12,300	3,160	None	2,860	4,000
30%	57%	None	51%	51%
3,690	1,800	None	1,460	2,040
50% to 90%	50% to 90%	50% to 90%	50% to 90%	50% to 90%
1913 to 1914	1910	1920 to 1922	1913	1911
1919	None	None	None	None
1916	1916	None	1916	1916
Ontario	Ontario	Ontario	Ontario	Ontario
$ 9,706	$ 2,979	$ 37 ,800	$ 2,182	$ 14,746
$575,204	$ 44,630	$197, 800	$ 78,261	$ 43,285
$147,388	$ 68,169	$567, 850	$ 21,439	$ 31,596
$461,676	$172,687	$666,850	$144,394	$141,400
$325,000	$100,000	$225,000	$125,000	$125,000
$1,518,974	$388,485	$1,695,300	$371,426	$356,027
$ 306	$ 161	$ None	$ 190	$ 130
$ 90	$ 71	$ 170	$ 77	$ 64

HISTORICAL DATA AND CAPITAL COSTS OF THE PLANTS OF THE

	Item	Ontario Power Co.	Erindale
19	Maximum Demand in 1921, Kilowatts	148,800	680
20	Load Factor for Year 1921	63.2%	66%
21	Output for 1921, Average, Kilowatts	94,000	453
22	Power Factor Limits	81.5% to 87%	90% to 98%
23	Construction Year	1902 to 1905	1910
24	Extension Year	1906 to 1919	None
25	Purchase Year	1917	1917
26	Present Owner	Ontario	H.E P C
27	Capital Cost, Lands and Water Rights	Included in Item 31	Included in It
28	Capital Cost, Dams and Water Structures	$ 5,927,193	$ 36,233
29	Capital Cost, Power House	$ 2,874,566	$ 3,557
30	Capital Cost, Equipment	$ 3,232,306	$ 52,152
31	Capital Cost, Intangible Assets	$10,000,000	$ None
32	Capital Cost, Total	$22,034.065	$ 91,942
33	Capital Cost per Horse Power, 1921, Average Output	$ 175	$ 504
34	Capital Cost per Horse Power, Turbine Rating	$ 98	$ 55

SYSTEM NORTHERN SYSTEM

Queenston-Chippawa 5 Units	Eugenia	Wasdell's	Big Chute
HYDRO-ELECTRIC POWER COMMISSION AS AT OCTOBER 31st, 1921.			
.....None.....	4,290	860	4,300
.....None.....	36.1%	49.7%	41.8%
.....None.....	1,550	427	1,780
.....Not Known.....	46% to 98%	90% to 100%	84% to 99%
.....1917 to 1923.....	1914 to 1915	1913 to 1914	1909
..... None.....	1917 to 1918	None	1913 to 1919
.....Not Relevant.....	1914	1913	1914
.....H.E.P.C.....	H E P C	H.E.P.C	H E P C.
.....Not Established...	$ 127,284	$ 8,140	$ 1,540
.....Not Established...	$ 439,790	$ 19,083	$ 143,865
.....Not Established...	$ 144,783	$ 50,118	$ 57,646
.....Not Established...	$ 278,416	$ 64,544	$ 325,190
.....Not Established...	$ None	$ None	$ 124,011
.....Not Established...	$ 990,273	$ 141,885	$ 652,252
.....Not Established...	$ 476	$ 249	$ 272
.....Not Established...	$ 116	$ 118	$ 100

NIPISSING SYSTEM

Item	Nipissing
OPERATING AND UNIT COSTS FOR 1921 FOR THE PLANTS OF	
35 Operating Cost, Labour, and	
36 Operating Cost, Material	$ 9,450
37 Maintenance, including Taxes, Depreciation, etc	$ 4,983
38 Municipal Expense	$ None
39 Fixed Charges	$15,680
40 Total Operating Expense	$30,113
41 Operating Cost, Minus Fixed Charges, per Horse Power, 1921, Average Output	$ 17.40
42 Operating Cost, Minus Fixed Charges, per Horse Power, Turbine Rating	$ 6.57
43 Operating Cost, Plus Fixed Charges, per Horse Power, 1921, Average Output	$ 36.30
44 Operating Cost, Plus Fixed Charges, per Horse Power, Turbine Rating	$ 13.66

THUNDER BAY SYSTEM | MUSKOKA SYSTEM | RIDEAU SYSTEM.

Nipigon 2 Units	South Falls	High Falls	Carleton Place.

THE HYDRO-ELECTRIC POWER COMMISSION AS AT OCTOBER 31st, 1921.

$ 12,121	$ 4,662	$ 5,284	Not Operating
$ 2,069	$ 362	$ 1,455	Not Operating
$ 15,759	$ 2,502	$ 2,777	Not Operating
$ 452	$ 510	$ 1,071	Not Operating
$157,000	$11,261	$43,346	Not Operating
$185,601	$19,297	$53,933	Not Operating
$ 5.45	$ 11.70	$ 16.00	Not Operating
$ 1.15	$ 4.60	$ 2.94	Not Operating
$ 35.30	$ 27.00	$ 82.50	Not Operating
$ 7.43	$ 11.00	$ 15.00	Not Operating

C E N T R A L

Item	Fenelon Falls	Auburn

OPERATING AND UNIT COSTS FOR 1921 FOR THE PLANTS OF

35	Operating Cost, Labour, and		
36	Operating Cost, Material	$ 5,797	$ 9,522
37	Maintenance, including Taxes, Depreciation, etc.	$ 1,710	$ 1,450
38	Municipal Expense	$ None	$ None
39	Fixed Charges	$12,600	$23,180
40	Total Operating Expense	$20,107	$34,152
41	Operating Cost, Minus Fixed Charges, per Horse Power, 1921, Average Output	$ 16.00	$ 6.20
42	Operating Cost, Minus Fixed Charges, per Horse Power, Turbine Rating	$ 7.50	$ 5.85
43	Operating Cost, Plus Fixed Charges, per Horse Power, 1921, Average Output	$ 37.50	$ 19.30
44	Operating Cost, Plus Fixed Charges, per Horse Power, Turbine Rating	$ 20.00	$ 12.00

ONTARIO SYSTEM

Healey Falls	Campbellford	Rannoy Falls	Frankford	Trenton
THE HYDRO-ELECTRIC POWER COMMISSION AS AT OCTOBER 31st, 1921.				
.....$ 40,452	.....$ 18,513	.....Not Operating	.....$ 16,869	.....$ 21,874
.....$ 4,859	.....$ 4,316	.....Not Operating	.....$ 1,186	.....$ 2,182
.....$ None	.....$ None	..... None	.....$ None	.....$ None
.....$ 84,400	.....$ 21,650	.....Not Operating	.....$ 20,650	.....$ 19,860
.....$129,711	.....$ 44,479	.....Not Operating	.....$ 38,705	.....$ 43,916
.....$ 9.10	.....$ 9.50	.....Not Operating	.....$ 9.20	.....$ 8.50
.....$ 1.62	.....$ 4.15	.....Not Operating	.....$ 3.75	.....$ 4.30
.....$ 26.30	.....$ 18.50	.....Not Operating	.....$ 19.70	.....$ 16.05
.....$ 4.65	.....$ 8.10	.....Not Operating	.....$ 8.05	.....$ 7.85

NIAGARA

Item	Ontario Power Co.	Eriniale

OPERATING AND UNIT COSTS FOR 1921 FOR THE PLANTS OF

35	Operating Cost, Labour, and.....		
36	Operating Cost, Material.....	$ 180,087.....	$ 5,071.....
37	Maintenance, including Taxes, Depreciation, etc..	$ 124,058.....	$ 1,229.....
38	Municipal Expense.....	$ None.....	$ None.....
39	Fixed Charges.....	$ 1,618,840.....	$ 8,137.....
40	Total Operating Expense.....	$ 1,922,985.....	$14,437.....
41	Operating Cost, Minus Fixed Charges, per Horse Power, 1921, Average Output.....	$ 2.41.....	$ 34.62.....
42	Operating Cost, Minus Fixed Charges, per Horse Power, Turbine Rating.....	$ 1.35.....	$ 3.75.....
43	Operating Cost, Plus Fixed Charges, per Horse Power, 1921, Average Output.....	$ 15.25.....	$ 79.32.....
44	Operating Cost, Plus Fixed Charges, per Horse Power, Turbine Rating.....	$ 8.50.....	$ 8.59.....

SYSTEM NORTHERN SYSTEM

	Quemston-Chippawa 5 Units	Eugenia	Wesdell's	Big Chute
THE HYDRO-ELECTRIC POWER COMMISSION AS AT OCTOBER 31st, 1921.				
Not Operating	$ 10,881	$ 5,255		$ 8,047
Not Operating	$ 3,383	$ 769		$ 1,783
Not Operating	$ 15,766	$ 2,259		$ 7,842
None	$ 5,034	$ 904		$ 3,372
Not Operating	$ 70,540	$ 9,634		$56,820
None	$105.604	$18,821		$77,864
Non Existent	$ 16.40	$ 16.00		$ 8.00
Non Existent	$ 4.00	$ 7.65		$ 3.25
Non Existent	$ 50.75	$ 32.90		$ 32.50
Non Existent	$ 12.40	$ 15.70		$ 12.00